

---

# *A Fatal Divide: Understanding the Rhetorical Disconnect Between Information and Fatalistic Beliefs about Nutrition-Based Cancer Prevention*

---

RACHEL BOONE

*Produced in Marcy Galbreath's Spring 2017 ENC 1102*

## **Introduction**

In 2016, an estimated 1.7 million individuals were newly diagnosed with cancer in America ("Cancer Facts"). However, research shows that one can take action to prevent cancer by eating right and having a healthy lifestyle (Key et al. 187). There are also many easily accessible sources that offer information about nutrition-based cancer prevention. Yet, it is very common for an individual to believe that cancer is not preventable. This disconnect between the information presented and the general public belief prompts questions as to whether the rhetoric used in online articles about nutrition-based cancer prevention is as effective as it could be. If there are significant problems with the rhetoric used, then it is imperative that those problems are corrected so that, ultimately, more people will be able to take control of their health. By attempting to understand what causes this disconnect, positive change in the communication of cancer prevention can begin to take place and the fatalistic beliefs much of the public holds will decline.

Although it has been shown that cancer can oftentimes be prevented, a high percentage of the public still has fatalistic beliefs about cancer (Kobayashi and Smith; Lee et al.; Niederdeppe et al.). Definitions of fatalistic beliefs in regards to cancer and cancer prevention vary study to study. However, a fatalistic belief can generally be characterized by "pessimism, helplessness, and confusion and ambiguity about ways to avoid getting cancer" (Niederdeppe et al. 230). These fatalistic beliefs can also be defined as "beliefs that cancer prevention is beyond human control and getting cancer is a matter of fate or luck" (Lee et al. 972). This mentality can include thoughts such as, "It seems like almost everything causes cancer," "There is not much people can do to lower their chances of getting cancer," and "There are so many recommendations about preventing cancer, it is hard to know which ones to follow" (Kobayashi and Smith; Lee et al.; Niederdeppe et al.). These

ideas are contrary to what cancer research currently concludes: most cancer can in fact be prevented. Not only that, but the individual can play a large role in preventing it.

Having fatalistic beliefs is damaging to individuals and can cause an individual to be less likely to seek information about cancer and cancer prevention (Kobayashi and Smith; Lee et al.; Niederdeppe et al.). If it is unlikely that individuals will seek information about cancer prevention, then it is also improbable that they will find ways to avoid getting cancer themselves. According to Jeff Niederdeppe and his colleagues, fatalistic beliefs may be increased by television news. As it turns out, the “newsworthy” information about cancer tends to be information about controversial or minor claims regarding possible causes of cancer. This information is over-publicized (Niederdeppe et al. 246). This means that relatively unimportant information regarding cancer causes and prevention, which often lack sustainable evidence, are being viewed by the public quite often, while the important and useful information is frequently left out or lost in the flood of news. As Jeff Niederdeppe and his colleagues put it, TV news tend to focus on “aspects of cancer that are likely to cultivate the beliefs that everything causes cancer or that there are too many recommendations about cancer prevention” (246). Although television news is not the only contributor to fatalistic beliefs, these findings show that the communication centered around cancer and cancer prevention could be doing more harm than good and needs to be changed in order for fatalistic beliefs about cancer to decrease.

The internet is used in so much of the communication happening today; the information presented on the web can have a profound impact on individual’s perceptions of cancer and cancer prevention (Lee et al.; Riles et al.). Chul-Joo Lee and his colleagues found that their conclusions “are consistent with the argument that [i]nternet use to acquire health information has [the] potential to reduce fatalistic beliefs about cancer prevention among some subsets of the population” (984). Although they found that the internet did not affect all demographics the same way, these results illustrate that the internet can truly play an important role in improving the health of the public and decrease deaths due to cancer. However, due to the fact that so much fatalism about cancer prevention persists, it is evident that the internet is not as helpful as it could be.

In a study that sought to understand how online news frames the information surrounding cancer and what effect this framing has, it was found that the internet was not only effective at improving beliefs about cancer, it could also negatively affect perceptions as well. The study participants’ perceptions of cancer changed significantly in both positive and negative ways based on what type of cancer was discussed and whether the discussion used a lifestyle, medical, or environmental frame (Riles et al. 1036). These findings support the idea that the manner in which information about cancer is communicated is vitally important to it being received in a beneficial way. Using rhetoric poorly to communicate information about cancer and nutrition-based cancer prevention could not only fail to improve fatalistic beliefs but could in fact increase these hurtful ideas; according to Lee et al., “The Internet is likely to play an increasingly important role as a source of cancer-related information” (987). It is vital that the internet’s role in cancer-related information be a positive one by using effective rhetoric to decrease cancer fatalism in the population.

In the past, there have been several similar public health situations like the one the public is facing today with cancer. The great improvement in the communication concerning these previous public health issues is important to understand when looking at the possibilities of rhetoric benefiting public health as it shows that terrible public health situations can greatly improve when there is proper communication (Gielen and Green; Kim et al.; Livingood et al.). The rapid decline in tobacco use is considered by some as “one of the greatest improvements in public health” (Livingood et al. 134). Through this improvement, it was found that certain rhetorical strategies were more effective than others. Kim et al. found that even when all the information was the same in all news articles presented to study participants, “the presence of an exemplar in a news article increased participants’ narrative engagement, which in turn was associated with elevated intention

to quit” (480). These findings illustrate that not only is the information being presented important when discussing public health issues, the rhetoric used in its communication plays a significant role in how likely it is to be effective.

A study titled, “The Impact of Policy, Environmental, and Educational Interventions: A Synthesis of the Evidence From Two Public Health Success Stories,” was centered around this idea that basic communication principles and strategies learned from past public health issues could be implemented in the public health issues of today (Gielen and Green 20). Gielen and Green discussed in this study both the decrease in tobacco use and the increase in vehicle safety and asserted that these were due to communication and effective rhetorical strategies (20). By looking at these studies, one can see that the way in which information is communicated regarding public health issues can have a dramatic effect on its acceptance by the population. This is true for communication surrounding cancer and nutrition-based cancer prevention as well. The rhetoric used to communicate cancer prevention is just as important as with these previous health situations. Due to the fact that fatalistic beliefs about cancer are so widespread, it is safe to assume that there is a disconnect between the information provided, how it is presented, and how it is received, and this disconnect may be at least partially due to poor use of rhetoric in discussing cancer and nutrition-based cancer prevention.

**Since it is important in how nutrition-based cancer prevention is communicated, it is helpful to understand genre and rhetorical strategies.**

Since it is important in how nutrition-based cancer prevention is communicated, it is helpful to understand genre and rhetorical strategies. The first major rhetorical strategy is to establish credibility. A study done on risk communication identified trust as a “key variable that plagues risk communication campaigns” (Kelly et al. 2). Oftentimes, audiences do not trust a source of information and thus do not value the information presented. Therefore, if a source about cancer prevention does not appear credible to the reader, then the information is ineffective because the reader will not believe it. This idea of trust and credibility is often referred to as “ethos” (Kelly et al. 2). Another rhetorical strategy is logos, the use of logic. In most cases this refers to the logical progression of an argument, but in the instance of cancer and cancer prevention, it is not only important that the information be logical, it is also necessary for the audience to understand the reasoning. Since cancer fatalism is partially defined as a sense of confusion about cancer and cancer prevention, making simple, clear, logical statements that the average audience member can understand is necessary for effective communication (Kobayashi and Smith; Lee et al.; Niederdeppe et al.). The third rhetorical strategy is pathos, the appeal to one’s emotion. Several studies have cited this appeal as being key in changing people’s perceptions and actions (Kelly et al.; Kim et al.; Livingood et al.).

Concerning the conversation about the relation between communication and the public’s understanding of cancer information, there is no doubt that much of the public holds fatalistic beliefs about cancer and nutrition-based cancer prevention despite the abundance of information available as many researchers have found this to be true. Some rhetors attribute this partially to over-communication of inconsequential cancer information on television news, while others have found that the internet can play a major role in changing the public’s perception of cancer in both negative and positive ways. In studying past public health issues and how they have improved, researchers have added that the rhetoric used and the way in which information was presented was a major cause of said improvements and that using similar strategies could improve current public health issues such as the widespread fatalistic beliefs about cancer. While both discussions about fatalistic beliefs regarding cancer prevention and studies on how information presented in the correct way could greatly change these beliefs have been taking place, there have been

remarkably few conversations as to what areas of disconnect regarding nutrition-based cancer prevention exist in the communication happening on the internet. By identifying these failures of communication, steps can then be taken to use more effective rhetoric and thus improve public health. In this research, the rhetoric and genres used in cancer prevention online articles will be analyzed in order to argue what rhetorical aspects of said articles could be causing the disconnect between information and public knowledge.

## Methods

The first part of this research was conducted by carrying out a content analysis of various websites and website articles concerning cancer, an analysis of the different rhetoric these various websites use, and a survey concerning how the public perceives these sources about nutrition-based cancer prevention. For the analysis, I examined a web page on the American Cancer Society website called, “Diet and Physical Activity: What’s the Cancer Connection?”; an article from the Huffington Post titled, “Breast Cancer, Diet and Healthy Living: Putting All the Pieces Together”; and an article from Health.com titled, “The Twelve Best Ways to Prevent Colorectal Cancer” (see Appendix A). These websites were chosen because they represent a government-run website, an online news article, and an article from a healthy living website. Each sample provides insight into a wide range of genres that communicate ideas about cancer prevention. According to Devitt et al., “Genres are the typical rhetorical ways of responding to a situation that repeatedly occurs within a scene” (22). In the book *Scenes of Writing*, this idea is further discussed, and from this discussion genres can be further understood as places of information which have similar content, rhetoric, purpose, and visual aspects (Devitt et al. 22). Since different genres have various ways of communicating information, some genres may be more effective in decreasing fatalistic beliefs than others. Therefore, understanding the difference of effectiveness between genres may help identify ways of communication that are beneficial.

These articles were also chosen because they were some of the first options that appeared when I searched terms such as “cancer prevention” and “nutrition-based cancer prevention” on Google, and thus were the some of the first articles any member of the public would encounter if they searched the same terms. Although there were parts of these websites that cover other aspects of cancer, I only analyzed the sections that talked specifically about cancer prevention through nutrition or other means.

There were six categories that were used in analyzing these sources: basic information (e.g. author, word count, etc.), pathos, logos, ethos, appearance, and other (e.g. step-by-step guides, confusing arguments, etc.). The information gathered in the first, fifth, and sixth categories was information that could be found directly in the articles or could be easily inferred by anyone without much debate. Only topics or images that could clearly generate some emotion in today’s culture were included in the analysis of pathos; even though there may be more subtle appeals to the emotions, those could be easily debated so they were not included. There were two subsections to the analysis of the logos used: the first was data and statistics which was further sorted into ambiguous data—data which answered neither how much of something was needed to be effective nor to what extent it was effective—and non-ambiguous data—data which did answer either how much of something was needed to be effective or to what extent it was effective or both, and the second was established knowledge—information that the rhetor posed as common knowledge in the medical community or the in the public. Included in the section of ethos was anything that could potentially increase or decrease the credibility of the source, including the qualifications of the rhetor as well as extensive amounts of advertising. In the “other” section, the information gathered varied somewhat based on subsection, but was mostly recurring aspects of the articles. Since the appearance of a source may affect the credibility of it or the language used may affect the pathos and so on, several aspects of the sources appear in multiple categories.

I coded and analyzed the articles by hand using a variety of notation marks but mostly by making notes and lists of the appearances of the rhetorical aspects being analyzed. The relevant markings, notes, and lists were then collected into the form of charts. In Appendix B, charts are provided with the sorted, relevant data. It is important to note that the rhetorical analysis of these sources has a margin of error due to the fact that the occasional appeal may have been missed and interpretation of rhetoric can vary some from reader to reader.

A survey consisting of eight questions, with some questions having multiple parts, was distributed regarding these websites and articles. The purpose of this survey was to understand the perceptions and interactions the public has of and with the content and genres in these websites. The online survey tool Survey Monkey was used for the collection and storage of the survey and survey results. The survey itself was distributed through the social media outlet Facebook. The questions to be included in this survey (see Appendix C) were designed to understand different elements of what the public knows about nutrition-based cancer prevention and their opinions of the articles (see Appendix E).

It is important to note that because the survey was distributed through Facebook there was a possibility of a more like-minded sample; the sample population of those who took the survey may not fully represent the entire population.

## Results

The three articles used in this research will be referred to as Article A, Article B, and Article C. These three articles shared similar information and structure of arguments; however, these articles greatly differed in their appearance and use of logos. Furthermore, there were elements utilized by all three articles but to different extents. The full results of the analysis can be found in Appendix B.

The complete results of the survey are listed in Appendix C. In this research, “agreement” includes answers of “agree” and “strongly agree” while “disagreement” includes responses of “disagree” and “strongly disagree.” There were a total of 44 people who completed this survey. All participants of the survey were over the age of 18 with the majority (59.1%) of participants being over the age of 45 and a quarter (25%) being between the ages of 18 and 25.

An of just under one quarter (23.86%) of survey respondents agreed with the fatalistic statements presented in question #2 while 47.73% disagreed with the statements. In question #3, 25.76% of survey participants agreed with the statements describing the difficulty of finding helpful information, while 55.68% disagreed. Question #4-A resulted in the majority of survey takers (54.86%) disagreeing with the idea that they regularly come across or research information regarding cancer prevention and nutrition-based cancer prevention and the minority (29.71%) agreeing. More respondents (45.45%) disagreed with the statement, “I regularly implement research I have found on cancer prevention into my life” than agreed with it (31.82%), while most participants (79.07%) agreed with the statement, “I regularly try to eat healthy on a daily basis” (Appendix D). It is important to note that the statement says, “try,” which does not mean that the survey takers actually succeeded in eating healthy.

59.09% of survey takers answered question #8. Of any one type of source, websites were the most common for the respondents to say that they used, with seven participants stating this. Books, with six respondents stating they used them, were the second most common source of cancer prevention information (Appendix D).

When asked to select all applicable descriptions of Articles A, B, and C in questions #5, #6, and #7 (Appendix D) survey participants did not select a high percentage of positive descriptions. An example of this would be that the respondents tended to find the articles not very credible with only 68.18% (Article A), 40.91% (Article B), and 45.45% (Article C) of respondents describing the article as credible.

## Discussion

Through the findings of this study, it became apparent to me that fatalistic beliefs about cancer prevention are a significant problem. While analyzing question #2, I found that the percentage of survey participants who held fatalistic beliefs was relatively high. This is exemplified by the fact that only 54.55% of respondents disagreed with the statement, "Cancer is not preventable in the majority of cases" (Appendix D). This finding aligns with those of Kobayashi and Smith, Lee et al., and Niederdeppe et al. in that fatalistic beliefs regarding cancer prevention are common despite the majority of cancer occurrences potentially being preventable. This is not surprising when compared to the statistics of how much information the sample population encounters: only 40.91% of the respondents regularly comes across articles or websites pertaining

**Through the findings of this study, it became apparent to me that fatalistic beliefs about cancer prevention are a significant problem.**

to cancer prevention while the majority (68.18%) of the population sample stated that they did not regularly research information about cancer prevention (Appendix D). It is thus evident that the information pertaining to cancer prevention is not reaching the public through the internet to the full potential that Lee et al. found it could in his study (984).

I cannot, however, state that the failure in communication of nutrition-based cancer prevention is caused mostly by the lack of exposure of online articles,

as there are several other significant problems with this form of communication. One area of concern which I have noted is that those who do research or come across information regarding nutrition-based cancer prevention will more often than not fail to implement the information into their lives (Appendix D). This suggests that online articles could improve by keeping the information applicable by providing guides as to how to utilize the information in one's own life.

Another problem I have identified in this research is that the public has a hard time finding credible online sources. Although 72.73% of respondents felt as though there is sufficient resources available on nutrition, only 59.09% stated that it is not hard to find a credible website about nutrition, and even fewer, 45.45%, believed that it is not hard to find a credible website about cancer prevention (Appendix D). From this, I have concluded that even though the members of the public are aware that there is information about nutrition and cancer prevention available, they do not believe that online articles are the most credible places to find that information. Yet, as I have determined in this research, online articles are still the most used resource for information about nutrition-based cancer prevention (Appendix D). Therefore, I expected that there are also problems with the articles themselves.

As I have mentioned in the Methods section, I used six categories to analyze the three articles. In my analysis of the appearance of the three articles, I found that Article A and Article C were very clean and simple; there were not many distracting advertisements or promotions, there were only a few muted colors, and the entirety of the articles were kept on one page. In Article B, I identified a great many colors, advertisements, and promotions, and the article was divided into several separate pages (Appendix B). I found that these distracting elements made Article B harder to read, while the lack of them provided a professional mood in Articles A and C. These layouts also contributed to the ability to use and navigate the articles. In the survey, I discovered that Article A, which had the simplest appearance, was described by the respondents as aesthetically pleasing and easy to navigate more than the other articles, while Article B was the hardest to navigate, the least aesthetically pleasing and made 6.82% of the respondents feel mad (Appendix D). I chose these articles because they represented different genres thus depicting the benefits of each, and I

discovered that genres affected the audience. Like Devitt et al. suggested, these genres responded in certain rhetorical ways to a conversation (22); but just because they are in the same conversation, it does not mean that the ways in which various genres respond are equal. In this conversation, I concluded that the audience wants clean, easy, and professional articles to read, and articles that are not as helpful.

In this research, I also studied the use of logos in the articles. All three articles differed in how they used statistics to convey information about cancer prevention to their audiences. Article A deviated the most from the other two by using the least amount of statistical data and treating the facts presented as established knowledge throughout the article (Appendix B). What I found is that even though Article A did not cite many statistics or studies, it did not suffer in the way of credibility but rather gained it in its efficiency. To clarify, the website was able to use more guides and tips for the benefit of the reader instead of being caught up in numerical statistics that the average person does not necessarily need to know. Since the way in which an article is framed affects how the audience receives information about cancer (Riles et al. 1036), knowing that this less data-focused framework for an article was more useful is very important in understanding the disconnects in rhetoric. The more effective framework was the one used in Article A, thus it is safe to conclude that the data centered frameworks of Articles B and C are potential contributors to the disconnects between information about nutrition-based cancer prevention and the fatalistic beliefs of the public.

Using the surveys, I determined that an area where articles may be causing disconnect is the area of ethos. Article A was considered the most credible with 68.18% of survey participants describing it as a credible source, while Article B was labeled the least credible with 40.91% of survey takers selecting that it was credible (Appendix D). The lack of credibility for the author, the unprofessional appearance, the contradictory information, and the ambiguous sources of Article B (Appendix B) offer an explanation as to why so few of the sample population found this source to be credible. However, Article A does not have most of these flaws in its ethos (Appendix B). Therefore, it is hard to determine what elements beyond those listed are damaging, but I have no doubt that the lack of ethos in articles on cancer prevention is a significant problem when it comes to the communication of nutrition-based cancer prevention.

Other aspects of these articles, which are important to analyze, are the contradictory and confusing information, the use of guides, and the use of definitions. In this analysis, I discovered that Article A, which had no contradictory information and used the most guides and definitions in the article to increase the usability and clarify the information (Appendix B), had the highest percentage of respondents describe it as helpful and the least percentage describe it as complicated or confusing (Appendix D). Article B, which had the highest occurrence of contradictory or confusing information (Appendix B), had the highest percentage of respondents describe it as confusing or complicated and the lowest percentage describe it as helpful (Appendix D). This shows that the clearer the information, the more useful it is for the readers. Since fatalistic beliefs are characterized partially by confusion (Niederdeppe et al. 230), my research also demonstrates that the occurrence of contradictory or confusing information is a major problem in the communication of cancer prevention and could cause more fatalistic beliefs to arise.

In my analysis of the pathos used in the three articles, I found that there were very few occurrences of any direct appeal to emotion in the articles (Appendix B). Therefore, I do not have enough information about the emotions they were trying to evoke in order to draw any conclusion as to their use and effectiveness. However, around one third of survey participants did state that the articles were interesting, just under a third found Article A made them feel hopeful, and 13.64% felt overwhelmed after viewing Article B (Appendix D). I have collected other statistics as to the emotions the articles made the readers feel, but the ones stated are the most notable. There are several equal possibilities as to why the survey participants felt these emotions, so no definite conclusions can be made at this time.

## Conclusion

Although this research identifies multiple aspects of nutrition-based cancer prevention communication in online articles that cause disconnections between the information provided and the general belief of the public, there is still much that warrants research in this subject matter. Each section I studied in this research (e.g. appearance, logos, etc.) could be studied individually. Studies of how different demographics view these types of articles would also add important knowledge to the ongoing conversation. More importantly, the problems identified in this research need to be fixed. Those able to make changes should strive to provide credible, easy to use, applicable, nutrition-based cancer prevention websites and articles to decrease the commonality of fatalistic beliefs and thus potentially reduce occurrences of preventable cancers.

## Works Cited

- "Cancer Facts: Cancer of Any Site." *Surveillance, Epidemiology, and End Results Program*, National Cancer Institute, [seer.cancer.gov/statfacts/html/all.html](http://seer.cancer.gov/statfacts/html/all.html). Accessed 9 Apr. 2017.
- Devitt, Amy, et al. *Scenes of Writing*. Pearson Education, 2004.
- "Diet and Physical Activity: What's the Cancer Connection?" *American Cancer Society*, American Cancer Society, 5 Feb. 2016, [www.cancer.org/cancer/cancer-causes/diet-physical-activity/diet-and-physical-activity.html](http://www.cancer.org/cancer/cancer-causes/diet-physical-activity/diet-and-physical-activity.html). Accessed 9 Apr. 2017.
- Gielen, Andrea C., and Lawrence W. Green. "The Impact of Policy, Environmental, and Educational Interventions." *Health Education & Behavior*, vol. 42, no. 1, 2015, pp. 20-24. *ERIC*, doi:10.1177/1090198115570049.
- Harding, Anne. "How to Prevent Colorectal Cancer." *Health.com*, Health.com, 27 July 2016, [www.health.com/health/gallery/0,,20544048,00.html](http://www.health.com/health/gallery/0,,20544048,00.html). Accessed 9 Apr. 2017.
- Kelly, Ashley Rose, et al. "Expertise and Data in the Articulation of Risk." *Poroi*, vol. 11, no. 1, 2015, pp. 1-9, doi:10.13008/2151-2957.1224.
- Key, Timothy J, et al. "Diet, Nutrition and the Prevention of Cancer." *Public Health Nutrition*, vol. 7, no. 1a, 2004, doi:10.1079/phn2003588.
- Kim, Hyun Suk, et al. "Narrative Health Communication and Behavior Change: The Influence of Exemplars in the News on Intention to Quit Smoking." *Journal of Communication*, vol. 62, no. 3, 2012, pp. 473-92. *MLA International Bibliography*, doi:10.1111/j.1460-2466.2012.01644.x.
- Kobayashi, Lindsay C., and Samuel G. Smith. "Cancer Fatalism, Literacy, and Cancer Information Seeking in the American Public." *Health Education & Behavior*, vol. 43, no. 4, 2016, pp. 461-70. *MLA International Bibliography*, doi:10.1177/1090198115604616.
- Lee, Chul-Joo, et al. "Socioeconomic Disparities in Fatalistic Beliefs About Cancer Prevention and the Internet." *Journal of Communication*, vol. 62, no. 6, 2012, pp. 972-90, *MLA International Bibliography*, doi:10.1111/j.1460-2466.2012.01683.x.
- Livingood, William C., et al. "Culture Change from Tobacco Accommodation to Intolerance." *Health Education & Behavior*, vol. 43, no. 2, 2016, pp. 133-38, *MLA International Bibliography*, doi:10.1177/1090198115626914.
- Niederdeppe, Jeff, et al. "Does Local Television News Coverage Cultivate Fatalistic Beliefs About Cancer Prevention?" *Journal of Communication*, vol. 60, no. 2, 2010, pp. 230-53, *MLA International Bibliography*, doi:10.1111/j.1460-2466.2009.01474.x.
- Riles, Julius M., et al. "Framing Cancer for Online News: Implications for Popular Perceptions of Cancer." *Journal of Communication*, vol. 65, no. 6, 2015, pp. 1018-40, *MLA International Bibliography*, doi:10.1111/jcom.12183.
- Ross, Sherry. "Breast Cancer, Diet and Healthy Living: Putting All the Pieces Together." *The Huffington Post*, TheHuffingtonPost.com, 5 Oct. 2015, [www.huffingtonpost.com/dr-sherry-](http://www.huffingtonpost.com/dr-sherry-)



ross/breast-cancer-diet-and-healthy-living-putting-all-the-pieces-together\_b\_8224594.html. Accessed 9 Apr. 2017.



## **Rachel Boone**

Rachel Boone is majoring in Biomedical Sciences. Her fascination with the inner workings of single-celled organisms and her desire to have a positive effect on the world has sparked her interest in research. She plans on continuing on and getting a doctorate in Microbiology once she graduates from UCF. From there, she plans on obtaining a position at a university where she can make new discoveries in her field while instilling the love of science in others.

## APPENDIX A: Sample of Articles

Article A:

The screenshot shows the top navigation bar of the American Cancer Society website. It includes a 'Cancer Helpline' button with the number 800.227.2345, a 'Live Chat' button, the American Cancer Society logo, 'Latest News' and 'English' dropdown menus, and a red 'DONATE' button. Below the navigation bar is a menu with categories: 'CANCER A-Z', 'STAY HEALTHY', 'TREATMENT & SUPPORT', 'OUR RESEARCH PROGRAMS', 'GET INVOLVED', and 'ABOUT US'. The article content area features a breadcrumb trail with 'WHAT CAUSES CANCER?' and 'DIET AND PHYSICAL ACTIVITY'. The main title is 'Diet and Physical Activity: What's the Cancer Connection?'. The text discusses how diet and exercise affect cancer risk, listing three key factors: maintaining a healthy weight, being physically active, and making healthy food choices. It also mentions that 20% of cancers in the US are related to these factors. The article includes sub-sections for 'Control your weight.' and 'What's a healthy weight?'. On the right side, there are social media sharing icons for Facebook, Twitter, Email, and Print.

Article B:



View as one page

1 of 14



Photo: Getty Images

### Colorectal cancer prevention

Beyond getting a colonoscopy starting at age 50, what can you do to prevent colorectal cancer? A lot, it turns out. The good news is that colorectal-cancer-preventing habits are nearly identical to those that help your heart.

"If you basically do what you're supposed to do to prevent coronary artery disease or to prevent a heart attack, then you're doing exactly what you should to prevent colon cancer," says Alfred Neugut, MD, professor of medicine and epidemiology at Columbia University Medical Center, in New York City.

Here are 12 tips for heading off colon cancer

1 of 14

### sponsored stories

Sponsored Links by @tutbrain



There's a Non-Surgical Procedure for Women's...

CORE



Marketing Speak for Salespeople: A Beginner's Guide

Salesforce

### trending now

5 Things Dermatologists Will Never Put on Their Faces

9 Healthy Kitchen Staples That Cost Under \$1 Per Serving

This Is How Much You'll Spend on Beauty Products in Your Lifetime

6 Ways to Invest Your Tax Refund Into Your Health

5 'Healthy' Foods Nutritionists Say Are a Waste of Money

5 Health Care Terms You Need to Know

Here's How Much it Would Cost You to Vacation Like a Kardashian

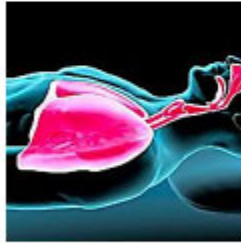
### sponsored stories

Recommended by @tutbrain



Warning: Don't Take Metformin Before You See This

vibranthealthnetwork.com



The Snoring Cure That Really Works. Hint: It's Not a Mask.

www.theconsumersavings.com



Lung Cancer is Deadly: Know the Signs

RM Healthy

### more from health

Article C:

THE BLOG 10/05/2015 04:24 pm ET | Updated Oct 05, 2016



# Breast Cancer, Diet and Healthy Living: Putting All the Pieces Together

By Dr. Sherry Ross



October is breast cancer awareness month. Breast cancer is diagnosed in over 220,000 women each year in the US. With one in eight or 12.3 percent of women being diagnosed, what can we do to prevent breast cancer or at the very least reduce our risk?

We have all heard the saying, "You are what you eat." If we can control breast cancer through our diet and healthy living, we can focus more on prevention as a viable means to reduce the incidence of this common cancer affecting so many of our family and friends.

### Diets High in Animal Fat

The Nurses' Health Study II showed "premenopausal women who ate diets high in animal fat had a 40 to 50 percent higher risk of breast cancer compared to women who ate less animal fat."

Red meat and high-fat dairy intake may increase levels of estrogen which may also increase the risk of breast cancer recurrence and survival. Other studies have shown the post-menopausal age group who consumed high fat diets also had a higher risk of breast cancer. Studies from China showed reducing animal-based foods and dietary fat from 24 percent to six percent lowered the breast cancer risk. The "good" fats include monounsaturated (olive oil, avocados, peanut butter) and polyunsaturated (salmon, flaxseed, nuts) fats while the "verybad" fats include saturated (high-fat meat, butter, dairy) and trans (fried foods, commercially baked snacks & pastries) fats. Omega-3 fish oil, a polyunsaturated fat, has also been shown to lower the risk of breast cancer. Reducing animal-based foods and dietary fat, especially saturated fats to less than 10 percent of daily calories, will lower your breast cancer risk.

### TRENDING

Taran Killam Confirms Trump 'Struggled To Read' At 'SNL'



Goldman Sachs Is About To Swallow Donald Trump



Watch This Cat Lose Its Mind After Faced With An Optical Illusion



President 'America First' Escalates Yet Another Military Involvement



Bill Maher Brutally Sums Up What Republicanism Has Become Under Donald Trump



### SUBSCRIBE TO & FOLLOW LIFESTYLE

We're basically your best friend... with better taste. Learn more

Newsletter

address@email.com

Subscribe Now





## APPENDIX B: Article Analysis

1.

<b>Basic Information</b>	<b>Author/Rhetor</b>	<b>Word Count</b>	<b>Audience</b>	<b>Sponsor/Publisher</b>
<i>Article A</i>	Variety of doctors, nurses, and writers in cancer field	862	Anyone	American Cancer Society
<i>Article B</i>	Anne Harding	755	Anyone	Health.com
<i>Article C</i>	Dr. Sherry Ross	645	Women	HuffingtonPost.com

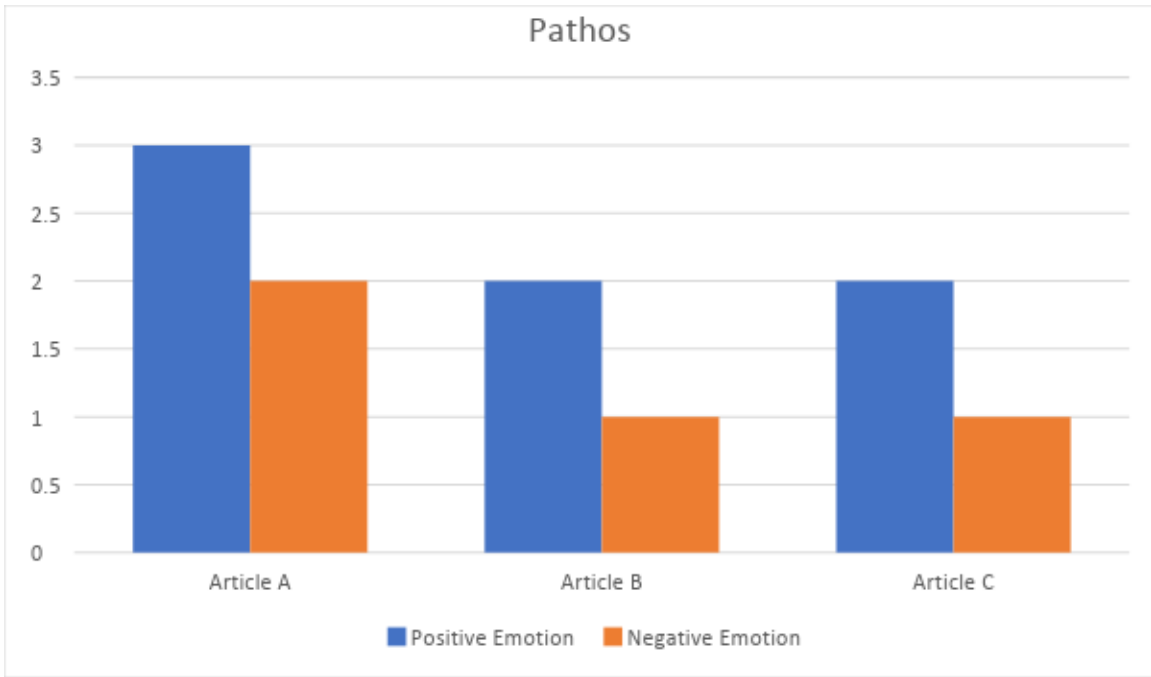
2.

<b>Appearance</b>	<b>Pictures in Article</b>	<b>Misc. Adds, Graphics, etc. Around Article</b>	<b>Colors</b>	<b>Clearly Divided Sections</b>	<b>Pages</b>
<i>Article A</i>	0	<10	Very limited use of dark blue and red	5 (with subsections) + introduction and conclusion	1
<i>Article B</i>	13	>20/page	Variety of colors on the majority of every page	12 + introduction	13
<i>Article C</i>	1	About 15	Limited use of variety of colors	7 + introduction and conclusion	1

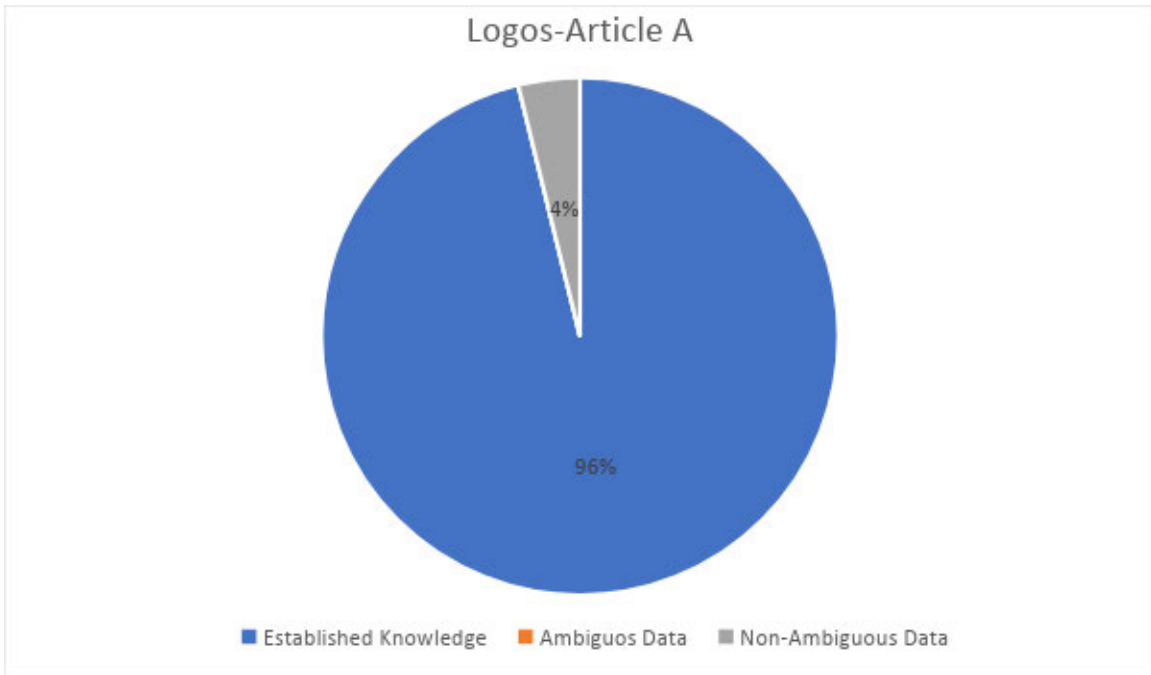
3.

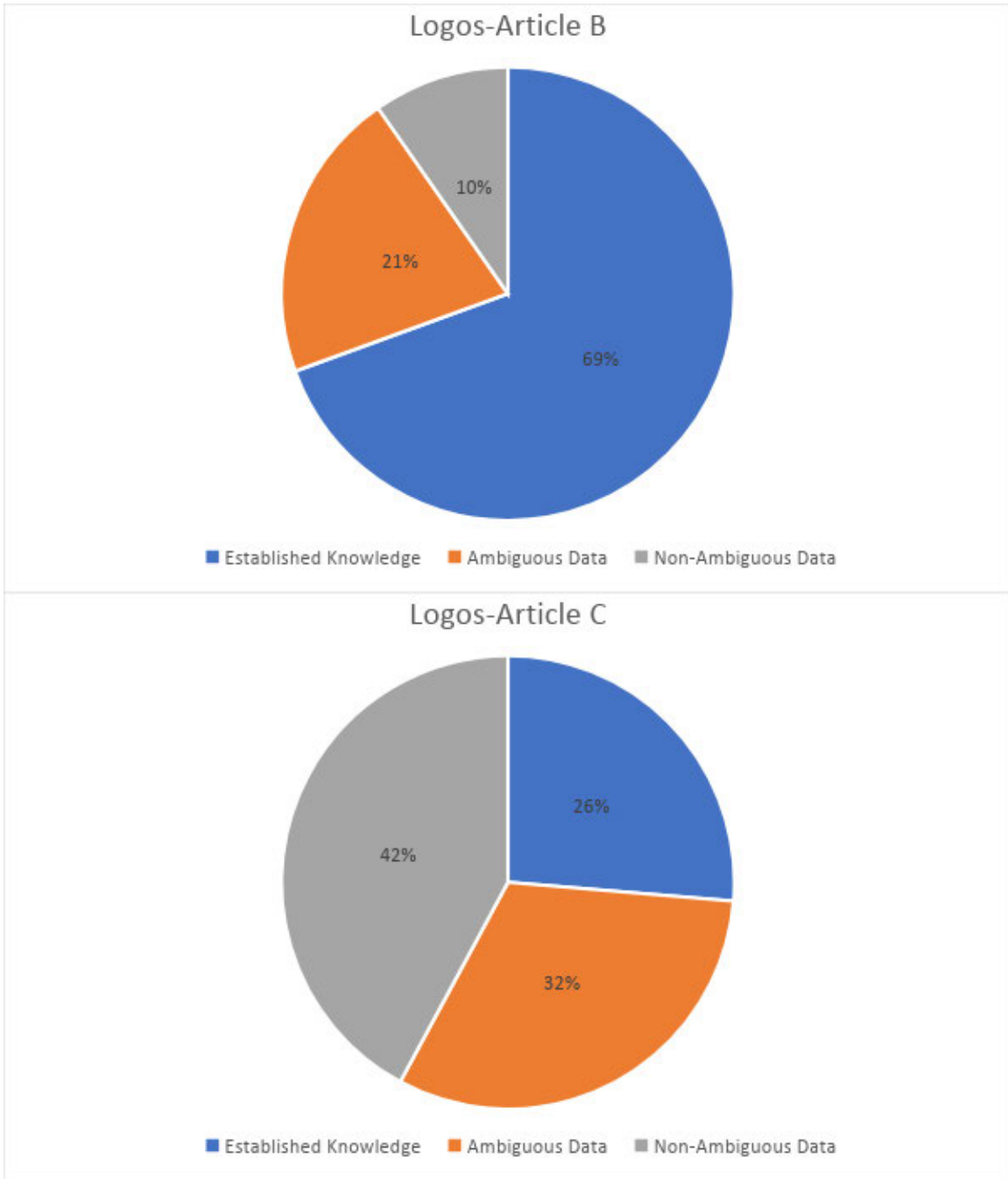
<b>Ethos</b>	<b>Article A</b>	<b>Article B</b>	<b>Article C</b>
<i>Ambiguous Sources</i>	1	8	10
<i>Non-Ambiguous Sources</i>	1	3	2
<i>Rhetor Credibility</i>	The rhetors have years of experience in the cancer field	No credibility is given	Rhetor is a doctor
<i>Purpose</i>	Appears to be for the soul benefit of the public	Appears to be for the benefit of the public but also for views thus money	Appears to be for the benefit of the public but also for views thus money
<i>Supporting Statistics</i>	Only one statistic given	13 statistics given but ¼ were ambiguous	15 statistics given but 1/3 were ambiguous
<i>Appearance</i>	Professional	Not Professional	Professional
<i>Last Updated</i>	Feb 5, 2016	July, 27, 2016	Oct 5, 2016
<i>Self-Contradiction</i>	None apparent	4 occurrences of contradiction	2 occurrences of contradiction

4.

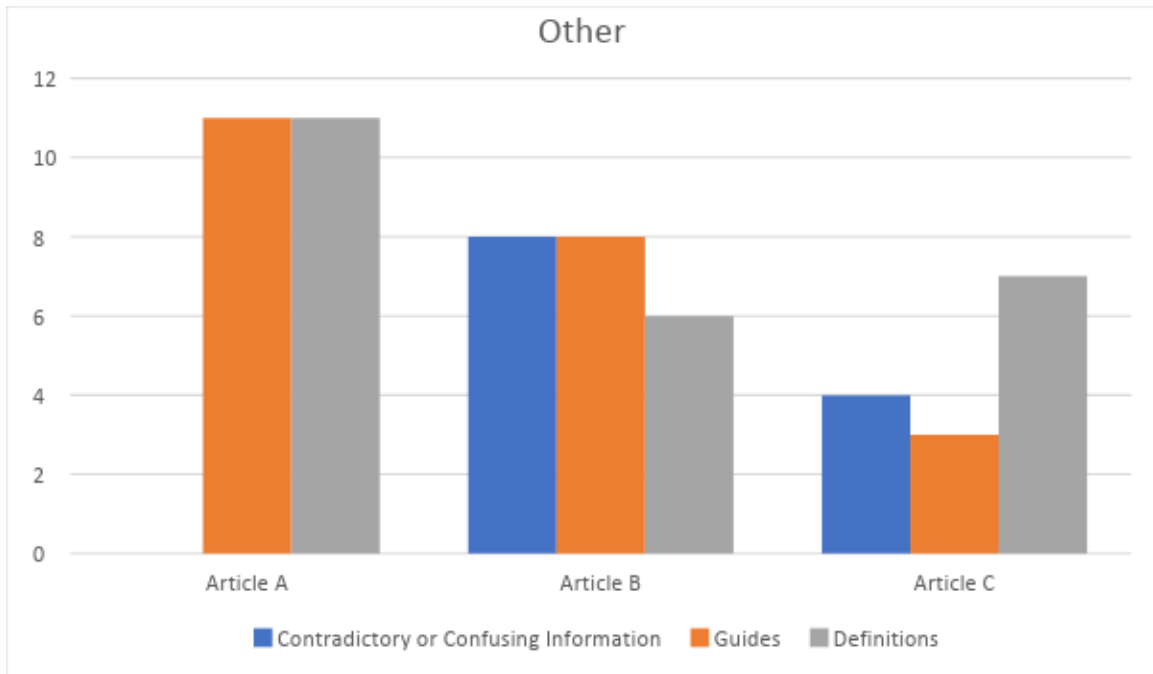


5.





6.





## APPENDIX C: Survey Questions

What is your age? (if under 18 please refrain from taking this survey)

- 18-25
- 26-35
- 36-45
- 46-55
- 56-65
- 66 or over

Please rate these statements based on strongly disagree, disagree, neither, agree, strongly agree.

- Cancer is not preventable in the majority of cases.
- Cancer is not preventable by good nutrition in the majority of cases.
- It seems like almost everything can be linked to cancer.
- Trying to prevent cancer through good nutrition is too difficult.

Please rate these statements based on strongly disagree, disagree, neither, agree, strongly agree.

- I feel as though very few resources are available for good nutrition.
- It is hard to find a credible website about cancer prevention.
- It is hard to find a credible website about nutrition.
- Information regarding nutrition based cancer prevention is hard to find.
- Information about cancer prevention is often too complicated to try to implement in my life.
- Information about nutrition is often too complicated to try to implement in my life.

Please rate these statements based on strongly disagree, disagree, neither, agree, strongly agree.

- I regularly come across articles and/or websites pertaining to cancer prevention.
- I regularly come across articles and/or websites pertaining to nutrition based cancer prevention.
- I regularly research information pertaining to cancer prevention.
- I regularly research information pertaining to cancer prevention through nutrition.
- I regularly implement research I have found on cancer prevention into my life.
- I regularly try to eat healthy on a daily basis.

Please view this article from (article name) and select all descriptions that you fell apply. (Please copy link into a new browser) (article link)

- Credible
- Complicated
- Over-simplified
- Insufficient Information
- Confusing
- Helpful
- Too long
- Too short
- Boring
- Interesting
- Convincing

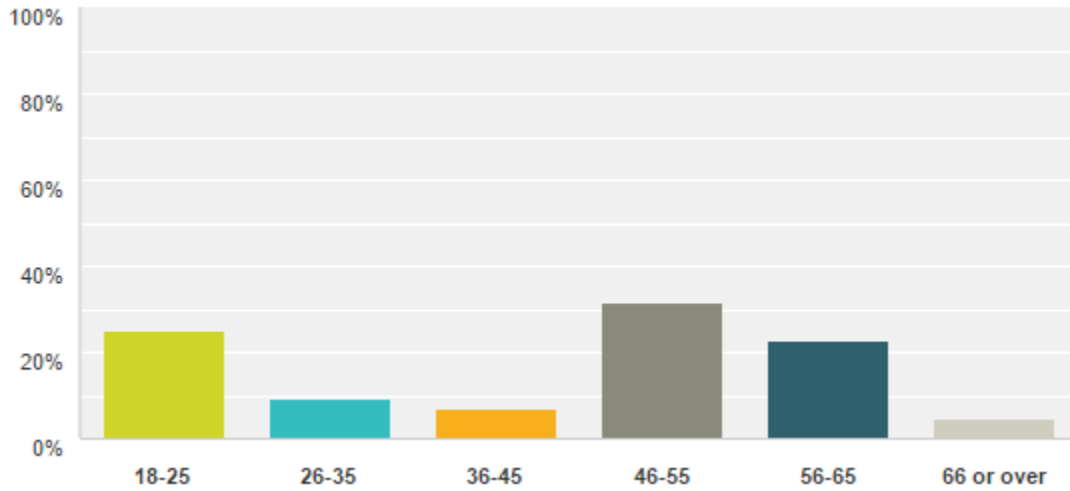
- Confusing language
- Aesthetically pleasing
- This source did not look easy to navigate
- I would use this information in the future
- I would use this source in the future
- This source made me feel sad
- This source made me feel mad
- This source made me feel happy
- This source made me feel hopeless
- This source made me feel overwhelmed
- This source made me feel in control

Previous question repeated for all articles

Please describe the sources about nutrition based cancer prevention you have previously come across. (optional)

## APPENDIX D: Survey Results

### Question #1: Age



### Question #2: Fatalistic Beliefs

	strongly disagree	disagree	neither agree nor disagree	agree	strongly agree	Total Respondents
Cancer is not preventable in the majority of cases.	18.18% 8	36.36% 16	15.91% 7	27.27% 12	2.27% 1	44
Cancer is not preventable by good nutrition in the majority of cases.	18.18% 8	45.45% 20	27.27% 12	13.64% 6	0.00% 0	44
It seems like almost everything can be linked to cancer.	2.27% 1	22.73% 10	27.27% 12	38.64% 17	9.09% 4	44
Trying to prevent cancer through good nutrition is too difficult.	29.55% 13	40.91% 18	25.00% 11	4.55% 2	0.00% 0	44

Question #3: Information Accessibility

	strongly disagree	disagree	neither agree nor disagree	agree	strongly agree	Total Respondents
I feel as though very few resources are available for good nutrition.	27.27% 12	45.45% 20	6.82% 3	18.18% 8	2.27% 1	44
It is hard to find a credible website about cancer prevention.	11.36% 5	34.09% 15	29.55% 13	25.00% 11	0.00% 0	44
It is hard to find a credible website about nutrition.	25.00% 11	34.09% 15	13.64% 6	22.73% 10	6.82% 3	44
Information regarding nutrition based cancer prevention is hard to find.	11.36% 5	22.73% 10	27.27% 12	31.82% 14	6.82% 3	44
Information about cancer prevention is often too complicated to try to implement in my life.	11.36% 5	47.73% 21	22.73% 10	15.91% 7	2.27% 1	44
Information about nutrition is often too complicated to try to implement in my life.	13.64% 6	50.00% 22	15.91% 7	20.45% 9	2.27% 1	44

Question #4-A: Amount of Information

	strongly disagree	disagree	neither agree nor disagree	agree	strongly agree	Total Respondents
I regularly come across articles and/or websites pertaining to cancer prevention.	6.82% 3	34.09% 15	18.18% 8	36.36% 16	4.55% 2	44
I regularly come across article and/or websites pertaining to nutrition based cancer prevention.	6.82% 3	43.18% 19	18.18% 8	29.55% 13	2.27% 1	44
I regularly research information pertaining to cancer prevention.	20.45% 9	47.73% 21	9.09% 4	18.18% 8	4.55% 2	44
I regularly research information pertaining to cancer prevention through nutrition.	20.93% 9	39.53% 17	16.28% 7	20.93% 9	2.33% 1	43

Question #4-B: Implemented Information

	strongly disagree	disagree	neither agree nor disagree	agree	strongly agree	Total Respondents
I regularly implement research I have found on cancer prevention into my life.	11.36% 5	34.09% 15	22.73% 10	22.73% 10	9.09% 4	44
I regularly try to eat healthy on a daily basis.	2.33% 1	9.30% 4	9.30% 4	53.49% 23	25.58% 11	43

Question #5: Description of Article A

Answer Choices	Responses	
Credible	68.18%	30
Complicated	4.55%	2
Over-simplified	18.18%	8
Insufficient Information	18.18%	8
Confusing	4.55%	2
Helpful	38.64%	17
Too long	9.09%	4
Too short	2.27%	1
Boring	6.82%	3
Interesting	36.36%	16
Convincing	27.27%	12
Confusing language	6.82%	3
Aesthetically pleasing	9.09%	4
This source did not look easy to navigate	2.27%	1
I would use this information in the future	22.73%	10
I would use this source in the future	22.73%	10
This source made me feel sad	0.00%	0
This source made me feel mad	0.00%	0
This source made me feel happy	4.55%	2
This source made me feel hopeful	29.55%	13
This source made me feel hopeless	2.27%	1
This source made me feel overwhelmed	4.55%	2
This source made me feel in control	9.09%	4
Total Respondents: 44		

Question #6: Description of Article B

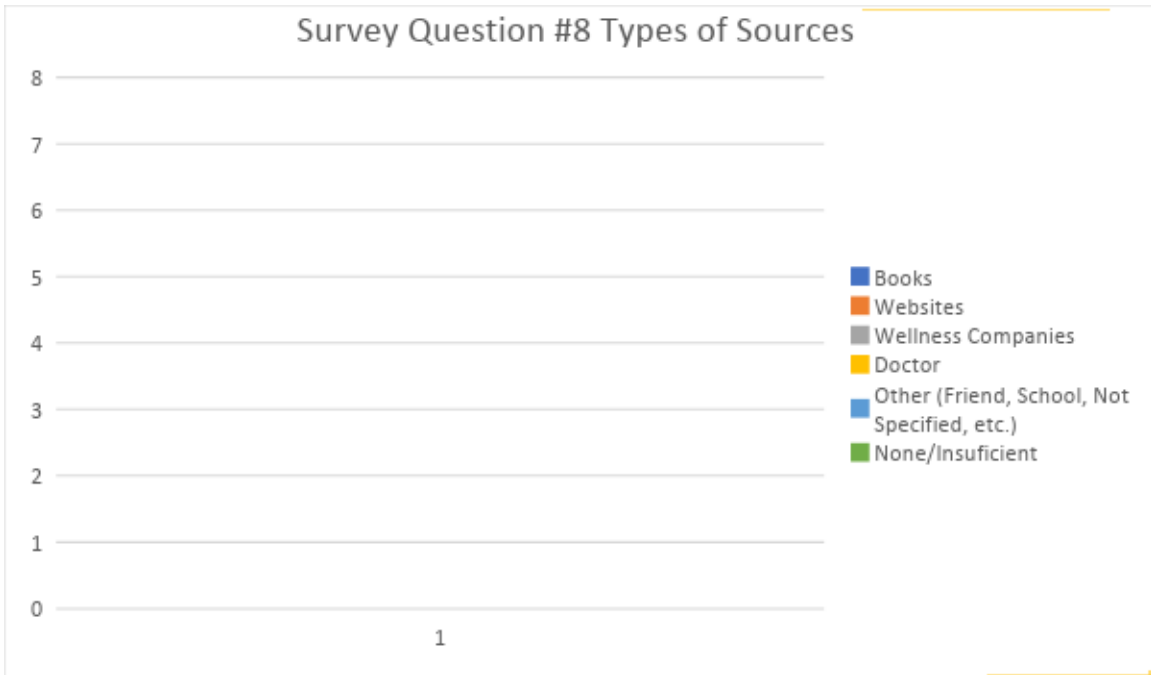
Answer Choices	Responses	
Credible	40.91%	18
Complicated	13.64%	6
Over-simplified	18.18%	8
Insufficient Information	15.91%	7
Confusing	13.64%	6
Helpful	22.73%	10
Too long	11.36%	5
Too short	0.00%	0
Boring	4.55%	2
Interesting	22.73%	10
Convincing	9.09%	4
Confusing language	2.27%	1
Aesthetically pleasing	2.27%	1
This source did not look easy to navigate	27.27%	12
I would use this information in the future	13.64%	6
I would use this source in the future	6.82%	3
This source made me feel sad	0.00%	0
This source made me feel mad	6.82%	3
This source made me feel happy	6.82%	3
This source made me feel hopeful	9.09%	4
This source made me feel hopeless	0.00%	0
This source made me feel overwhelmed	13.64%	6
This source made me feel in control	2.27%	1
Total Respondents: 44		

Question #7: Description of Article C

Answer Choices	Responses	
Credible	45.45%	20
Complicated	6.82%	3
Over-simplified	20.45%	9
Insufficient Information	13.64%	6
Confusing	6.82%	3
Helpful	25.00%	11
Too long	6.82%	3
Too short	11.36%	5
Boring	9.09%	4
Interesting	36.36%	16
Convincing	13.64%	6
Confusing language	2.27%	1
Aesthetically pleasing	4.55%	2
This source did not look easy to navigate	2.27%	1
I would use this information in the future	20.45%	9
I would use this source in the future	13.64%	6
This source made me feel sad	0.00%	0
This source made me feel mad	2.27%	1
This source made me feel happy	0.00%	0
This source made me feel hopeful	11.36%	5
This source made me feel hopeless	0.00%	0
This source made me feel overwhelmed	2.27%	1
This source made me feel in control	4.55%	2
Total Respondents: 44		



Question #8: Types of Sources



## APPENDIX E: Purpose of Survey Questions

- Question #1 determined the age of the participant.
- Question #2 was designed to measure the fatalistic beliefs of the population sample taking this survey.
- Question #3 assessed the difficulty the public has in coming across or researching information about cancer prevention, specifically, nutrition-based cancer prevention.
- Question #4-A was designed to evaluate the amount of information about cancer prevention and nutrition-based cancer prevention that the public encounters.
- Question #4-B determined whether people implement the information they may find online into their lives.

Note: Question #4-A and question #4-B were in one question in the survey for the convenience of the survey participants, but because question #4-B does not have the same idea and purpose behind it, it is analyzed as a separate question.

- In questions #5, #6, and #7, participants were asked to view the three website articles and select all descriptions that they believed applied to the articles.
- Question #8 was an optional question and asked the participants to describe any sources about nutrition-based cancer prevention they had previously come across.

Note: Since this question allowed the survey takers to describe these sources any way they wished, some participants wrote about content or quality of the sources that they had come across previously. However, for the purposes of my research, only the type (book, website, etc.) of the source was used. If a single participant gave more than one type of source, then sources were counted separately; multiple examples of the same type of source were counted as a single unit when given by the same survey taker.