

# The Ironic Effect of Covering Health: Conflicting News Stories Contribute to Fatalistic Views Toward Eating Well

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## Abstract

*In the United States in particular and globally more broadly, the number of overweight or obese people has increased considerably over the past few decades. This is a serious public health issue and it is important to investigate what role the media may play in this problem. This research examined some of the psychological mechanisms that could explain the previously identified link between media and an unhealthy diet by specifically testing the effects of reading news stories that contain contradictory (or consistent) health information. It was hypothesized that contradictory messages would lead to confusion among participants which in turn would cause them to develop fatalistic views toward eating well—that is, a feeling that they are unable to understand proper nutrition, a variable that has an established relationship with unhealthy food consumption. Results confirm that conflicting health information caused increases in fatalistic views toward eating well in addition to increased general negative affect. Implications from this research are discussed.*

**Key Words:** news media; fatalism; nutrition

## Introduction

In the United States, the number of overweight and obese individuals has grown considerably over the previous generation with over one-third of the population now considered to be obese (Centers for Disease Control and Prevention [CDC], 2016; Ogden, Carroll, Curtin, Lamb, & Flegal, 2010; Ogden, Carroll, & Flegal, 2008). This increase is not just a problem within the United States, though, as the rate of obesity has doubled worldwide since 1980 (World Health Organization, 2016). Although being overweight or obese is often seen as a personal issue, the reality is it is not: medical costs associated with obesity in 2008 were an estimated \$147 billion (CDC, 2016).

There are many personal, genetic, and social factors that can contribute toward an individual becoming obese. One common issue, though, is the consumption of unhealthy foods (CDC, 2016). Previous researchers have linked media use with unhealthy eating and increased BMI (Brown, Nicholson, Broom, & Bittman, 2011; Fulton et al., 2009; Yen et al., 2010), but beyond an assumption that media use is by definition sedentary and encourages snacking, little research has been conducted to understand other reasons for that association. This is surprising as the media can play a role in at least two important ways: a) the media may discuss the problem of obesity and improper nutrition and provide potential solutions (e.g., how to eat better); and b) the media, through advertising, may attempt to persuade the public to consume certain foods, often at the expense of others.

The purpose of this research is to examine the specific effects related to the exposure of individuals to news stories that are related to health or nutrition. Through reading these news articles, it is believed that individuals may develop attitudes or knowledge about food and nutrition; however, if for some reason they are not able to fully understand those articles, it is possible that reading them will only lead to confusion and less understanding of what constitutes a healthy diet. Previous research has established a link between confusion about what constitutes a healthy diet and unhealthy eating (Northup, 2014); therefore, exploring any link between media consumption and nutritional confusion is an important step to understanding the possible psychological mechanism that at least partially explains the link between media consumption and unhealthy eating more broadly.

## Literature Review

It is recognized in many theories related to human behavior (e.g., Theory of Planned Behavior, Ajzen, 1985) that one's perceived ability to perform a behavior is central to actually carrying out that behavior. In the context of eating well, if individuals do not understand what is nutritious or do not believe they have the ability to eat well, it is possible they will not consistently consume healthy foods because of this lack of perceived ability. It is important, then, to understand how people develop knowledge and attitudes about nutrition.

The news media may offer a particularly important source of information about health and nutrition (Pew Research Center, 2009). Although not extensive, those who have conducted the extant research suggest the coverage of food and nutrition within the news media provide multiple and often conflicting accounts and explanations of both the causes of and solutions for obesity (Kim & Willis, 2007; Lawrence, 2004). In turn, these conflicting frames may then confuse news consumers about the problem (Nagler, 2014). Although no specific explanation of why coverage is confusing has been experimentally tested, one explanation is that because the news media often highlight the latest research being conducted, the stories present information that contradicts earlier assertions or at least contributes new ideas. Furthermore, because of the time and space limitations associated with news coverage, health and science information is typically presented without a great deal of context to situate the research. Therefore, the casual consumer of news and health-related coverage may hear conflicting and/or new messages all the time without fully understanding how those fit in with their prior knowledge.

When considering conflicting health information, Carpenter and colleagues (2015) created a typology of conflict that consists of four dimensions: the issue under conflict, the number of conflicting sources (multiplicity), the degree of evidence heterogeneity, and the degree of temporal inconsistency. As applied to the current context of nutritional messaging within the media, the four dimensions would operate as such. First, the *issue of conflict* would be the particular health topic being discussed in the media. This could range from the *The Today Show* covering the health benefits of the avocado to an editorial in the *New York Times* arguing that fats may in fact be good for you. *Multiplicity* refers to the number of sources that are presenting this conflicting information. For instance, the effects would differ if people hear about the health risks of sugary drinks from one source compared to many. *Evidence heterogeneity* refers to the sources of the information of conflict. Individuals could react very differently if the sources of nutritional information conflict within a media story are scientifically based compared to anecdotal evidence. Finally, *temporal inconsistency* refers to the time and distance that exists between the presentation of conflicting information. If conflicting information is presented together or in close proximity, it is hypothesized to influence consumers differently than if the information is presented at different points in time.

One specific outcome associated with the viewing of conflicting information is confusion about the cause of the negative health problem (like obesity), which is often conceptualized as an individual's fatalistic

belief about the issue. In this context, fatalistic views relate to feelings of helplessness and/or an inability to prevent or understand the cause(s) of a situation so that nothing can be done to affect the ultimate outcome. Research related to the development of fatalistic views has often been conducted in the context of risky behaviors related to cancer development (e.g., Jensen et al., 2011; Lee & Niederdeppe, 2011; Morris, Field, Wagner, Cutrona, and Roblin, 2013; Niederdeppe, Fowler, Goldstein, & Pribble, 2010; Portnoy, Leach, Kaufman, Moser, & Alfano, 2014). For instance, in one of the only research studies directly looking at the media's role, Lee and Niederdeppe found a relationship between news use and fatalistic views about cancer. In Lee and Niederdeppe's research, holding fatalistic views about cancer caused people to have lower self-efficacy regarding cancer risk-reducing behaviors.

Extending Lee and Niederdeppe's (2011) results to nutrition, Northup (2014) found that those who consume more media in general, and news media specifically, tended to hold higher fatalistic views toward eating well. Northup also found a strong relationship between those fatalistic views and unhealthy food consumption. Similarly, Nagler (2014) found there to be a relationship between one's reported exposure to conflicting health information in the media and confusion about what foods are best to eat. Nagler further provided support that developing those attitudes in turn led people to doubt nutritional information in general.

Northup's (2014) and Nagler's (2014) research is important for two reasons. One, it provides survey correlational data that suggests a relationship between consuming conflicting information in the media and fatalistic views toward eating well. Two, it provides important outcome links between fatalistic views toward eating well and actual poor behaviors or intentions—that is, Northup provided support that confusion led to increased unhealthy food consumption and Nagler found that confusion led to discounting nutritional information more broadly, including positive health information (like to exercise).

Although Northup's (2014) and Nagler's (2014) research is compelling, any conclusions drawn about why the relationship exists between media consumption and nutritional fatalism can only be conjecture due to the survey design of the studies. Therefore, the purpose of this research is to build on their research by testing experimentally the effects of reading media reports that contain conflicting (or consistent) information about a topic related to health and nutrition. Based on the previous research, it is expected that conflicting messages found within the stories will cause individuals to hold increased fatalistic views toward eating well. Therefore, the first hypothesis proposed:

**H<sub>1</sub>:** *Participants who read conflicting health information will hold more fatalistic views toward eating well compared to those who do not read conflicting health information.*

In addition to fatalistic views, it is likely that those who read conflicting information will experience higher levels of negative affect. This negative affect is hypothesized to be related to an uncomfortable feeling of trying to sort out the conflicting information. Therefore, this second hypothesis is posed:

**H<sub>2</sub>:** *Participants who read conflicting health information will be higher in negative affect compared to those who do not read conflicting health information.*

Finally, it is believed that those who read articles with conflicting information will hold more negative views toward the topic of the articles compared to those who read non-conflicting information:

**H<sub>3</sub>:** *Participants who read conflicting health information will hold more negative views of the topic being covered compared to those who do not read conflicting health information.*

### Study 1

In order to examine these hypotheses, a 3 condition (positive, negative, or mixed valence news articles) experiment was conducted wherein participants each read two newspaper articles about organic foods before answering relevant dependent variables.

**Participants.** A total of 131 undergraduate students at a large, public university located in the Southwestern United States participated. Their average age was 23.19 ( $SD = 5.36$ ). The majority of participants was female (67%), with 35% of the sample being White, 28% Hispanic, 23% African American, and 12% Asian. All individuals were enrolled in introductory communication courses and received extra credit for their participation.

**Procedure.** Participants were emailed a link to the experiment, which was completed entirely online. At a time of their choosing, participants clicked on the link, which took them to a cover letter explaining their rights as research participants. Once they agreed to participate, they were told that they would first read two recent newspaper articles related to organic foods. One article was from the *Los Angeles Times*, one was from the *New York Times*. They then read the two articles according to their condition, to which they were randomly assigned (both positive, both negative, one positive/one negative). In addition to the condition being randomly

assigned, the order of the particular articles was also rotated. Importantly, participants were unable to advance past the articles until after at least two minutes time. This helped to ensure that participants would read at least some of each article.

After reading the articles, participants then completed the dependent measures (listed below). After those were complete, participants filled out demographic information before completing the study. All participants were debriefed and provided contact information for the principal investigator should they have additional questions.

### Independent Variable

The key independent variable was the news stories that the participants read. In order to create those, the online layout of the *Los Angeles Times* and *New York Times* were closely mimicked in Photoshop. These two newspapers were chosen as they represent well-known national papers that are generally respected. A total of four different stories were created—two for each paper, a positive and negative one. All stories related to organic foods. Organic foods were chosen as a topic because it is an area that most people have at least some familiarity with. For both positive and negative stories, actual articles were found that discussed the positives or negatives of eating an all-organic diet. These stories were then exported as an image, which were presented to participants as a screen grab from a recent online article. The lengths of all articles were nearly identical, as were the page layouts. Please see Figure 1 for an example screenshot.

### Dependent Variables

**Fatalism.** To measure the extent to which participants have adopted a fatalistic view toward eating well, a five-item measure was used based on the measures created by Lee and Niederdeppe (2011) and Northup (2014). Participants rated the extent to which they strongly agreed or disagreed with statements such as: "It is almost impossible to understand what foods are healthy." The five items had acceptable reliability, Cronbach's alpha = .77,  $M = 2.83$ ,  $SD = .75$ , with lower scores representing a more fatalistic view towards eating well.

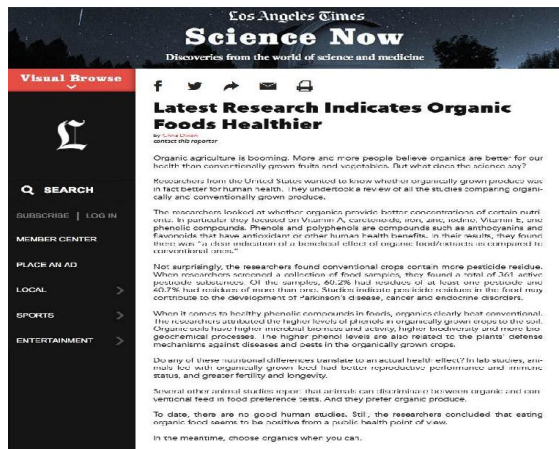
**Negative Affect.** To measure the extent to which participants were experiencing negative affect, they had to rate the extent to which they currently felt: frightened, tense, nervous, anxious, and uncomfortable. These items had good reliability, Cronbach's alpha = .87,  $M = 2.66$ ,  $SD = .67$ , with lower scores representing increased negative affect.

**Attitudes Toward Organic Foods.** To measure the participants' views toward organic foods, they were

asked how strongly they agreed or disagreed to seven statements related to organic foods, such as: "It is important to me to eat organic foods whenever possible." The items had good reliability, Chronbach's alpha = .87,  $M = 2.68$ ,  $SD = .76$ , with lower scores representing more favorable attitudes.

*Demographics.* In addition to the four dependent variables, participants' ages, genders, and races were recorded. Worth noting, there were no significant differences on any dependent variable based on demographic information, so no further analyses will be discussed with these.

Figure 1 Sample Screenshot of Stimulus Material



**Results**

In order to determine the extent to which the condition influenced participants, a series of ANOVAs were conducted.

H1 predicted that those who read conflicting health information would hold more fatalistic views toward eating well than those who did not read conflicting health information. According to the ANOVA, there were significant differences based on condition,  $F(2, 129) = 3.41, p < .05$ . According to Fisher's Least Significant Difference (LSD) post hoc analysis, the mixed condition ( $M = 2.60, SD = .81$ ) was significantly different from the positive condition ( $M = 2.97, SD = .82$ ) and the negative condition ( $M = 2.94, SD = .58$ ). The positive and negative conditions did not differ. These results suggest that those who read a mixture of positive and negative news related to organic foods generally had more fatalistic views than those who read strictly positive or negative news. H1 is therefore supported.

H2 predicted that those who read conflicting health information would be higher in negative affect than those who did not read conflicting information. According to the ANOVA, there were significant differences among conditions,  $F(2, 125) = 4.46, p < .05$ . According to Fisher's LSD, the mixed condition ( $M = 2.44, SD = .58$ ) was significantly different from the positive condition ( $M = 2.87, SD = .75$ ). The negative condition ( $M = 2.65, SD = .62$ ) did not differ significantly

from either of the others, although it approached significance from the mixed condition ( $p=.12$ ). These results suggest that those who read the positive news had the most positive affect at the time, with those in the mixed valence condition having the most negative affect. This partially supports H2. Worth noting, there was no relationship between fatalistic views and affect ( $r = .02, n.s.$ ).

H3 predicted that those who read conflicting health information would hold more negative views toward the topic (organic foods) than those who did not read conflicting information. According to the ANOVA, there were significant differences among conditions,  $F(2, 129) = 17.36, p < .001$ . According to Fisher's LSD, all three conditions differed significantly from each other, with the positive news condition being the most favorable toward organic foods ( $M = 2.26, SD = .71$ ), the negative news condition the least favorable ( $M = 3.11, SD = .69$ ) and the mixed valence news in between ( $M = 2.63, SD = .65$ ). This partially supports H3 as the mixed valence held worse opinions than the positive news condition, but not as low as the negative condition.

**Study 1 Discussion**

This experiment was the first step in understanding the specific effects related to reading conflicting news stories about health and nutrition—stories that are typical of what can often be found within the news media. The results generally support the idea

that reading conflicting news stories causes individuals to experience increased negative affect as well as hold increased fatalistic views toward eating well. This is important because it means that when individuals encounter information that presents opposite sides of a nutritional story, the end result is confusion about what to do. This confusion has been linked to increased unhealthy eating (Northup, 2014) as well as discounting other health information (Nagler, 2014) so it is an important relationship to explore. Unsurprisingly, those who read the positive stories about organic foods had very positive attitudes toward organic foods, while those who read mixed or negative stories had less favorable views.

Although the results of Study 1 are interesting, there were some shortcomings that could be addressed in part by a second study. One concern is that there was no control condition for Study 1. A control condition would be useful so that a baseline/non-exposure level for measures like “fatalism” are established. To address this, Study 2 adds a control condition. Study 2 also uses a different topic—eggs—to ensure that the results of the first study are not topic dependent. The type of article used is also adjusted so that all information is presented in one article, rather than two. The story design—based on BuzzFeed—is increasingly popular and recreates the look and feel of many online news stories that are produced today.

### Study 2

Study 2 is an extension and replication of the first study, following a similar 3 condition (positive, negative, mixed story) plus control experimental design.

*Participants.* A total of 281 participants took part in this study, with the average age being 22.52 ( $SD = 5.15$ ). As with Study 1, the majority of participants

were female (75%), with 41% of the sample being White, 30% Hispanic, 10% African American, and 8% Asian. All participants were enrolled in introductory communication courses at a large public university located in the Southwestern United States.

*Procedure.* The same procedure as Study 1 was used in this study.

### Independent Variable

For Study 2, a similar design was used with a few key changes. First, the story topic for this study examined the nutritional benefits (or drawbacks) of eggs. Second, rather than have each participant read two separate articles, all participants only saw one “Buzzfeed” article. BuzzFeed was chosen as it is a relatively popular news source that often presents news in the form of lists. Therefore, articles could easily be positive (10 positive attributes of eggs), negative (10 negative attributes of eggs), or mixed (5 each positive and negative). Please see Figure 2 for an example.

### Dependent Variables

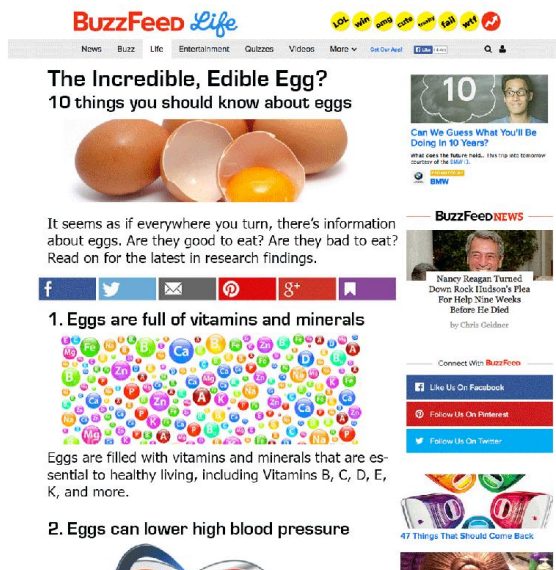
*Fatalism.* The same measure used in Study 1 was used in this study, Cronbach's alpha = .81,  $M = 2.65$ ,  $SD = .78$ .

*Negative Affect.* The same measure as Study 1 was used in this study, Cronbach's alpha = .86,  $M = 3.46$ ,  $SD = .65$ , with lower scores representing increased negative affect.

*Attitudes Toward Eggs.* To measure the participants' views toward eggs, they were asked how strongly they agreed or disagreed to three statements related to eggs, such as: “I think eggs are an important part of a balanced diet.” The items had reasonable reliability, Chronbach's alpha = .74,  $M = 2.68$ ,  $SD = .529$ , with higher scores representing more favorable attitudes.



Figure 2 Sample Screenshot from Stimulus Materials



## Results

Similar analyses were conducted in this study, with a series of ANOVAs being employed along with Fisher's Least Significant Difference post hoc test.

Considering first H1, which predicted that participants who read conflicting health information would hold more fatalistic views than those who read consistent, results of the ANOVA suggest there were significant differences,  $F(3, 277) = 13.70, p < .001$ . According to Fisher's LSD, the positive article ( $M = 2.89, SD = .80$ ) was significantly different from the negative ( $M = 2.37, SD = .68$ ) and mixed ( $M = 2.38, SD = .65$ ) articles, but not the control condition ( $M = 2.94, SD = .71$ ). The mixed and negative conditions did not differ from each other, but did differ from the control. These results generally suggest that those who read the mixed or negative articles adopted a more fatalistic view toward nutrition than those in the positive news or control conditions. Worth noting is that those in the positive news condition did not differ from the baseline control condition. This partially supports H1.

H2 predicts that those who read conflicting health information would demonstrate higher negative affect than those who read non-conflicting information. The results of the ANOVA suggest there were significant differences,  $F(3, 275) = 20.97, p < .001$ . According to Fisher's LSD, the positive news condition ( $M = 3.92, SD = .24$ ) was significantly different from the negative news ( $M = 3.15, SD = .76$ ), mixed valence ( $M = 3.34, SD = .58$ ), and control ( $M = 3.45, SD = .65$ ) conditions. The negative news condition was significantly different from the positive and control conditions and approached significance with the mixed condition ( $p = .055$ ). The

mixed and control conditions did not differ. These results generally suggest that those who read the positive news felt more positive than those who read the mixed (or no) news, with those reading the negative article feeling worse. This again partially supports H2.

Finally, H3 predicts that those who read conflicting health information would hold more negative views toward the topic (eggs) than those who read consistent information. Results from the ANOVA suggest there were significant differences,  $F(3, 277) = 6.41, p = .001$ . According to Fisher's LSD, the positive news condition ( $M = 2.79, SD = .49$ ) and control condition ( $M = 2.81, SD = .47$ ) were both significantly higher than the mixed valence condition ( $M = 2.50, SD = .47$ ) and the negative condition ( $M = 2.59, SD = .58$ ). The positive and control did not differ from each other and neither did the negative and mixed conditions. Therefore, the results would generally suggest that those in the positive and control condition viewed eggs more favorably than those in the mixed and negative conditions, which partially supports H3.

## Study 2 Discussion

These results built on Study 1 in a couple of important ways. First, and most relevant to the overall purpose of this research, this study generally replicated the results of Study 1 by showing that those who read a news story that contained "mixed" information about a health topic tended to adopt more fatalistic views toward eating well than those who did not read the story. Second, these results extended the findings to a new topic (eggs rather than organic foods) as well as style of

presentation (Buzzfeed rather than a traditional news article).

In relation to affect, it is interesting that reading the BuzzFeed article that was positive in tone made people feel better, whereas reading the negative article made people feel worse with no differences in the mixed condition. These results are slightly different than Study 1. Although any explanation of this is conjecture, it is possible that eggs are something that are so integral to diets already that this information may have been viewed as more directly related to the participants actual diets (compared to organic foods in Study 1, which students may support but probably have less control over in day-to-day eating decisions). Therefore, reading positive attributes related to eggs made people feel good because it reinforced positive outcomes to something they already are eating, whereas reading negative attributes about something they enjoy made them feel worse.

Finally, it is interesting that regarding their overall views of eggs, those who read positive articles did not differ from the control, whereas those who read negative or mixed information had significantly more negative views. Again, this is not too surprising given the design of the research study. It is possible that the lack of difference between the control and positive condition was related to a ceiling effect as there was an overall positive view of eggs within the control group.

### General Discussion

Given the current issue of obesity within the United States and globally, it is important for researchers to investigate the role the media may play in contributing to the problem. Previous research has suggested a link between media use and unhealthy eating, but little research has tried to understand some of the underlying psychological mechanisms to further explain that relationship. The purpose of this research was to begin to fill that void by investigating the extent to which consuming media may influence one's fatalistic views toward eating well. This was done by experimentally manipulating news stories to explore the effects related to reading news articles that contain contradictory (or consistent) health-related information. This is a relevant topic of research because the structure and demands of the news media make it so that the latest information is presented often in a relatively short format, with this information often contradicting or shedding new light on previous health and nutritional information.

Based on previous research, it was generally predicted that reading news stories that contained contradictory information would cause people to have increased fatalistic attitudes toward eating well—that is, they would have a decreased belief that they understand

proper nutrition. Across two studies, the results generally support that prediction as reading news stories that either contradicted each other or that contained contradictory information within one story led individuals to hold more fatalistic views about nutrition than those who did not read those types of stories.

This outcome—increased fatalism—is important because of the previous research that suggests that those high in this measure are more likely to consume unhealthy foods (Northup, 2014) and discount other health and nutrition information (Nagler, 2014). This relationship is not entirely surprising: If someone does not believe that he can understand what is and is not healthy, there will be decreased self-efficacy and a higher likelihood that he will not try to eat well. Put another way, if one of the key determinants of behavior is the ability (perceived or actual) to do that behavior, having something decrease that ability will therefore decrease the behavior.

It is troubling and somewhat ironic for the news industry that the presence of contradictory information within health-related news stories led to this increase in fatalistic views. After all, the news industry's duty is to provide the latest information to consumers—this means, quite often, that new information may contradict earlier information or that there could be competing ideas about what is best. Yet, unfortunately, the mere inclusion of this conflicting information—at least in the context of health stories—may have a profound and negative effect on those who consume them.

It is possible, of course, that the very confines and limitations of news stories contribute to this problem. After all, they tend to be short and highlight new information at the expense of providing a great deal of context. Future research will do well to further investigate the extent to which providing more information might help to alleviate any of the negative effects found here.

Beyond fatalistic views, the results of this research also point to changes in affect and attitudes associated with reading different types of articles. Considering affect, those who read the stories that had conflicting information (Study 1) or negative and conflicting information (Study 2) tended to feel worse compared to those in the positive, non-conflicting groups. In regards to attitudes, reading mixed or negative information typically made people less favorable to the topic of the story (organic food or eggs). Both sets of results intuitively make sense. Reading negative information tends to be an uncomfortable experience. Similarly, short-term changes in attitude would be expected when presented with information that these different types of food may be bad, or good, for you.

Together, the implications from these studies is that the presence of contradictory information within a health news story or stories may make audience members uncomfortable and lead them to hold negative attitudes about the story topic and feel less empowered to understand proper nutrition. This is a problematic outcome given that news often presents complex issues in simplified manners that highlight what is new and what is contradictory or contested. Although this is the way in which news is most often presented, perhaps it should not be so for issues related to health and nutrition. Rather, stories related to health may be better served within news articles that can provide more context to the situation.

Although these results are compelling, there are a few limitations that should be noted. First, the sample was entirely comprised of college students. Although racially diverse, this is still a non-representative sample and future research would do well to include individuals not currently enrolled in college. This study was also presented in a somewhat artificial manner—screen shots from news websites. While the design of

these stories was carefully constructed to directly imitate the sources from which they were supposedly coming, it nevertheless is a step removed from naturally encountering these messages. Finally, an important control variable could be preexisting nutritional knowledge or interest. Future research would do well to include other control variables to try to further isolate the effects.

Despite these limitations, this research presents an important step forward to illuminating the relationship between media use and unhealthy eating. The news media is, after all, a particularly important source of information for health messages. Results of this research suggest, though, that the inclusion of contradictory information within or between stories may lead to confusion among news users, which could have negative health implications. Future research needs to be completed to further explicate this relationship and, more importantly, determine if there are ways to offset this negative effect, perhaps by increasing background context to the stories.

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