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Eating With Your Eyes: What You See May Predict What You Eat.

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Eating With Your Eyes: What You See May Predict What You Eat.

An Honors Program Thesis

by

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Abstract

This study investigated whether regulatory focus and social comparison could predict healthy eating intention. The Theory of Planned Behavior explained eating intention and healthy and unhealthy food photos from social networking sites, along with an androgynous target were used to induce feelings of similarity. Participants were randomly assigned to four surveys. Using a regression, it was found that healthy eating intention was predicted by promotion focus. However, social comparison did not yield significance. We found that although there was a significant relationship between promotion focus and healthy eating intention, it did not matter if the participant felt similar to the target, nor did it matter whether the participant received an upward or downward comparison target. This is an important topic to study because eating behavior can affect peoples quality of life depending on if they eat healthy or unhealthy.

Keywords: Eating behavior, intention, social comparison.

Table of Contents:

Eating With Your Eyes: What You See May Predict What You Eat.

According to the Center for Disease Control (CDC), more than one-third (36.5%) of U.S. adults and 17% or children and adolescents (aged 2-19 years) are obese. This means that across the United States, more than one in three adults, one in six children (ages 2-19) and one in eleven young children (ages 2-5) are obese. Rates of obesity are increasing over time.

This growth in obesity has implications for causes of mortality. According to the American Heart Association, people's bodies are most efficient when at their healthiest weight as their bodies fluid levels are easily managed and blood is efficiently circulated throughout the body. However, when people are obese, their blood cholesterol and triglyceride levels rise, HDL (good cholesterol) is lowered, blood pressure increases, and they're at a higher risk of developing diabetes ("Obesity Information", 2018). Consequently, with this growth in obesity, the United States has seen the top causes of death shift to illnesses that "have significant lifestyle and behavioral components, such as heart disease, chronic respiratory diseases, and certain cancers" (Howland, et al., 2016). Diseases like hypertension, type 2 diabetes and coronary heart disease (CHD) increase the risk of morbidity in obese people. These comorbidities are why people who are obese are more likely to die from complications from these diseases due to their excess weight. According to the CDC, obesity will probably replace cigarette smoking as the major killer of Americans in the next century (Grundy, 1998).

According to the World Health Organization, obesity is assessed by the Body Mass Index. This is measured by weight and height which correlates to total body fat content. The Center for Disease Control states that "overweight is defined as a BMI of 25 to 29.9 kg/m^2 and obesity as a BMI of $\geq$30 kg/m^2" Based on these guidelines, the CDC estimates that about "69 percent of adults are either overweight or obese, with approximately 35 percent obese" (Obesity

Expert Panel, 2013, p.4) Although, on average across individuals, there is a connection between BMI and body fat levels by using total body weight, it has limitations when used on an individual basis. For example, BMI is not always an exact predictor of health; there are weightlifters who have high BMI's because of their muscle weight. While there are many ways to measure obesity, there is debate about the accuracy of using BMI, despite the fact that it has been the go-to measure of many health professionals. Some other ways to measure obesity are by measuring waist circumference, waist-to-hip ratio, skinfold thickness, bioelectric impedance, and magnetic resonance imaging (MRI; Hu, 2008). Regardless of how it is measured, it is clear that obesity is increasing and has harmful health outcomes.

Predictors of Obesity

"This is what people don't understand: obesity is a symptom of poverty. It's not a lifestyle choice where people are just eating and not exercising. It's because kids - and this is the problem with school lunch right now - are getting sugar, fat, empty calories - lots of calories - but no nutrition." Tom Colicchio

There are various factors that predict obesity besides the number of calories eaten and calories expended. Obesity is a complex, chronic disease. With respect to genetic components, there is, for instance, a rare genetic mutation within the melanocortin receptors (pituitary peptide hormones). There is also a mutation on the LEP gene that blocks leptin production, a hormone that is released from fat cells inside adipose tissue. Each of these helps to explain genetic components of obesity. Biological and genetic mutations help to explain genetic components of obesity (Loos and Bouchard, 2003). Although obesity does have a genetic component, "acquired influences probably exceed genetic factors in its causation" (Grundy, 1998).

Reasons for what causes obesity are complex and not just related to calories in versus calories out, and it is important to note that there are other meaningful causes of obesity. There are many other socioeconomic status issues that might explain the rise in obesity among certain populations. The term "food desert" refers to low-income, urban neighborhoods that have limited access to foods that make up a healthy diet (Smith & Cummins, 2011). There are three factors that make up a food desert. Those factors are: access to food, as in how close are markets that sell healthy food options, affordability, as in how much the healthy food options cost, and

availability, as in the variety of healthy food choices (fruits and vegetables) that are available in the market (Smith & Cummins, 2011).

Although at first glance it might appear that the obesity epidemic would be studied primarily by those in fields such as health and nutrition, work in other areas has shed light on this epidemic as well. For instance, economists have studied the obesity epidemic. This work has shown the role of the broader social context in obesity. For example, work in economics has looked at social norms. Social norms are expectations and ideas that individuals have regarding patterns of behavior that are deemed normal in their group. The work has also looked at social pressure. This is also known as peer pressure. Factors such as social norms and peer pressure are considered "non-market factors" in economic literature. Economic literature refers to the effects of non-market factors such as social norms and social pressure as an "endogenous social effect" (Fletcher, 2011, p.303). Endogenous social effects are effects that could potentially increase "benefits of intervention without increasing the costs." The concept of endogenous social effects helps to explain the idea that the presence of peer effects could help increase healthy eating behavior; however, there is a downside to the role of peer behavior in eating behavior. This is because peer effects could also have a negative effect if geared towards unhealthy eating behavior. Because endogenous social effects such as peer pressure might attenuate the effectiveness of various interventions aimed at increasing healthy eating behavior, it is especially important to study them.

The role of peer pressure and scial norms in obesity raises the issue of social media. Not only are waistlines increasing, the use of social media has also increased exponentially ("Percentage of U.S. Population", 2018). While social media is a pervasive mainstay in our culture, obesity should not have to be. Diet and exercise are not the only panacea for weight loss.

There are various treatment strategies to help people with weight loss that include behavior therapy, pharmacotherapy, and surgery (Encinosa, Du & Bernard, 2011). In addition to these therapies, we think social media could be included as part of a prevention and treatment strategy in combination with one of the previous strategies. Our reasoning behind this idea is the idea that many people follow social norms on social media to conform with others, and social media acts like an outlet to broadcast these social norms that others adopt. For example, the ALS Ice Bucket Challenge was a phenomenon whose popularity was influenced not only by its message but throughout social media. The ice bucket challenge was created to raise funds and awareness for Amyotrophic Lateral Sclerosis (ALS), also known as “Lou Gherig’s Disease.” People either had to donate $100 or participate in the ALS Ice Bucket Challenge. Many people choose to do both, and celebrities like Oprah Winfrey, Lady Gaga and Taylor Swift all shared videos of themselves dumping ice water on their heads and then challenged others to do so as well. Many people saw the videos and repeated them, and this is how the ice bucket challenge, which was for a good cause, spread rapidly on social media (Ward & Edmondson, 2015). That being said, the ALS Ice Bucket Challenge is a good example of how social media makes peer pressure and social norms more salient.

Eating Behavior

While there are many other factors, such as stress or genetics, that cause obesity, previous research has linked eating behaviors to obesity, e.g., the influence people in relationships have on each other's eating behavior (Howland et al., 2016). Eating behavior refers to patterns of what, how, and why people eat what they do. Food can be used for purposes other than sating hunger, such as reinforcement (Branen & Fletcher, 1999), or rewarding oneself or another for good behavior (e.g., "I exercised today, I'm going to eat ice cream"). There are many factors that influence people's eating decisions, such as exposure to food, culture, where they live, religious restrictions, social and environmental factors (Guptill, Copelton, & Lucal, 2013). Since there are various cultures and ideas that are shared online, social media could be a vehicle that helps people make healthier eating decisions. While we cannot measure behavior, we can measure intention and understand how perceived norms make a difference in behavior. This is explained by the Theory of Planned Behavior.

Theory of Planned Behavior

A person's behavioral intention is their plan or expectation that they will engage in a certain behavior, and the Theory of Planned Behavior is a model that's designed to predict behavior by bringing in the idea that when someone decides to engage in a specific behavior they make the decision to do so based on their perception about that behavior (Azjen, 1991). This perception is, in part, what predicts their intention. People make decisions about how they perceive things based on their subjective norms (Payne, et al., 2004). Subjective norms are "the perceived social pressure to perform or not perform the behavior in question" (Azjen, 1991, p. 188). Intentions are what people are motivated by, and their behavior is influenced by these intentions. For example, they might show how hard someone is willing to work at a goal, or how much effort they put into something in order to accomplish the behavior (Azjen, 1991). Azjen (1991) suggested that "as a general rule, the stronger the intention to engage in a behavior, the more likely should be its performance" (Azjen, 1991, p., 181). To reiterate, the Theory of Planned Behavior says that behavior is predicted by behavioral intention, and that behavioral intention is predicted by attitudes, perceived control, and norms.

Researchers have studied norms and food behavior. The role of norms in this area of research suggests that according to norms, people follow what others do and that people will vary their eating depending on what others in the group are doing. Specifically, one study looked at inhibitory norms that control eating. When presented with palatable food (in other words, food that people find delicious), people tend to continue eating unless they observe how other people around them are eating. If the other person or people around them stop eating, they will stop eating. This may be part of the reason why many impression management studies have shown that people tend to eat less in front of others than when alone. This idea helps to explain how

"people match the behavior of others to enhance their own social acceptance or self-image" (Herman, Roth, & Polivy, 2003, p. 879). In other words, the behavior of others makes a difference in people's own behavior.

We can tie this into the idea that social norms govern social media and that people may consciously or subconsciously make decisions about what or how they want to eat in the near future based on what they see posted by others on social media. This connection between others' behavior and one's own behavior, and the role of social norms, is captured by part of the Theory of Planned Behavior. This theory suggests that people's behaviors can be predicted by perceived social norms.

Another aspect of the Theory of Planned Behavior that is relevant for the current paper is the connection between behavioral intention and behavior. Previous research has found that broadly speaking, intention is related to behavior. This is suggested by the Theory of Planned Behavior. The results found that the theory of planned behavior successfully predicted intention and behavior. For instance, the authors Payne, Jones, and Harris (2004) found in their study that intention was the best predictor of actual behavior. The researchers found that intention and perceived behavioral control predicted the actual behavior with respect to intention to eat healthily (Payne, et al., 2004). This is consistent with previous research that examined this behavior.

The connection between behavioral intention and behavior is so strong that some research has focused solely on predicting behavioral intention. For example, Chan, Prendergast and Ng (2016) created an expanded Theory of Planned Behavior, which included self-efficacy and perceived barriers, to understand what influenced Chinese adolescents healthy eating intentions. They did this by administering a questionnaire that included peer reviewed Theory of Planned

Behavior scales to 635 students whose mean age was 15.58. The researchers found that "subjective norm from the media, self-efficacy, attitude toward healthy eating, and perceived behavioral control were all positively related to healthy eating intention" (Chan, Prendergast & Ng, 2016, p., 22). The researchers suggested that the Theory of Planned Behavior deliberately predicts behavior and they also suggested that adolescents could be taught to make healthy snacks and identify healthy food options by their teachers or parents. In all of these studies behavioral intention predicted behavior. The most relevant aspects of the model for your research are the connection between norms and behavioral intention and the connection between behavioral intention and behavior.

This is important to understand for two reasons. First, behavioral intention predicts behavior, the authors of this study focused solely on behavior, which can be logistically more feasible to measure in research studies. Second, the findings of the study highlight once again the role of social norms in behavior. More specifically, the findings suggest that norms can be developed within a relationship and that people in relationships could motivate their partner to make better or worse lifestyle choices. The theory of planned behavior offers two insights, first, intentions can be used to predict behavior, and the second is that social norms predict behavioral intentions. Social norms are conveyed through social media. Something that might help people make better lifestyle choices is social media. It is possible that social media is changing the way people make food choices, people are not only learning eating habits from their home (Branen & Fletcher, 1999), but also from online. My goal is to look at how social media usage might predict or explain eating behavior.

Social Media & Behavior

In 2017, 81% of the U.S. population had a social networking profile. There are approximately 2.44 billion social media users worldwide, and that number is expected to grow to 2.95 billion by 2020 (“Percentage of U.S. Population”, 2018). Something that might be related to eating behavior would be messages on social media. Those messages are colored by impression management.

When investigating social media, it is important to keep ideas of impression management in mind. Many people have an ideal image that they want to portray, whether it be through the way they dress, how they speak, behave, or even the kind of car they drive. Social media allows people another avenue to shape the way they would like to be portrayed. People tend to “put their best foot forward,” or, in other words, present the best versions of themselves when presenting themselves on social media. This is explained by Impression Management, which suggests that people control their actions either through habit or intention. Previous research has suggested that impression management is important to “the study of the self, identity, and interpersonal relations” (Schlenker, 1980, p., V).

Many impression management strategies can be seen in people’s online behavior. For instance, people may simultaneously have the motivation to self-promote and to avoid being seen as a braggart. Since people have a desire to present themselves the way they want others to see them, they may engage in humblebragging. Humblebragging is defined as when people mask “their self-aggrandizing statements in a complaint or humility” (Sezer, Gino & Norton, 2017, p. 1). Humblebragging is one way people use self-presentation for managing the impressions of themselves that they want others to see. Research has found that humblebragging comes across as insincere and does not garner sympathy nor impresses others, making it an ineffective method

of self-presentation as people report that they think it lacks sincerity (Sezer, Gino & Norton, 2017). According to the researchers, there are two types of humblebragging: complaint based and humility based. The researchers found that people who came across as "complaint based" humblebraggers (who express a brag in a complaint) were viewed more negatively than those who straightforwardly brag or even than those who complain" (Sezer, Gino & Norton, 2017, p. 12), with insincerity as the mediating role. While braggers and complainers were not well liked, they came across as sincere. Humility based humblebraggers, combining bragging with humility, e.g., "I can't believe they all thought of me to nominate for this award and want me to give a talk in front of thousands of people" (Sezer, Gino & Norton, 2017, p. 3) were also seen as insincere. These findings suggest that it is important to realize that humblebragging is a bad strategy to use in self-presentation.

Previous research about self-presentation strategies suggests that the motives behind using these strategies are that people want to be liked, convey competence and/or be respected (Sezer, Gino & Norton, 2017). The increase in humblebragging online has led the researchers to hypothesize that it is not effective as a self-presentation strategy because it makes people seem insincere. Many people think that engaging in humblebragging makes them seem sincere; however, that is not accurate. When people engage in humblebragging, "bragging masked by complaint or humility" (Sezer, Gino & Norton, 2017), they are actually seen as insincere. People who humblebrag are doing so to preserve an image of how they want to be perceived, and they can use humblebragging to shape that perception, especially on social media. Since humblebragging is a sub set of self-presentation, reasons why people may engage in this behavior are to show off their competence, friendliness, or physical attractiveness to others (Leary & Allen, 2011).

Self-Presentation

Despite the fact that what people post online may not accurately convey what they do or how they feel, previous studies have suggested that when people use social media they tend to engage in social comparison by spontaneously comparing themselves to others. When someone engages in social comparison they are judging themselves by comparing themselves to others. There are two types of social comparison: upward and downward social comparison. Upward social comparison occurs when comparing oneself to someone they deem superior with positive attributes. On the other hand, downward social comparison "occurs when comparing oneself to inferior others who have negative characteristics" (Vogel, Rose, Roberts, & Eckles, 2014, p. 206). While upward social comparison may be beneficial in inspiring people to be like their comparison target, the negative side of upward social comparison is that it may cause people to feel "inadequate, have poorer self-evaluations, and experience negative affect" (Vogel, Rose, Roberts, & Eckles, 2014, p. 207). These advantages and disadvantages also hold true for downward social comparison. Downward social comparison may make people feel negative if the person see's themselves as similar to the downward social comparison; or another downside is that it may not motivate people, or it may remind them of a feared self. When people are presented with a negative social comparison on social media – they may experience depression – when ruminating over what they see on social media, if they feel negative in comparison, depression may occur. (Feinstein, et al., 2013). However, downward social comparison often "leads to improvements in affect and self-evaluation" (Vogel, Rose, Roberts, & Eckles, 2014, p. 207). Thinking about the idea that people usually present their best selves on social media more

often, people are likely to make upward social comparisons as they view others' posts on social media.

A definitive conclusion has not been decided as to whether social media use is "beneficial or harmful for psychological well-being" (Vogel & Rose, 2016, p.294). Studies have found that social media use could have a positive or negative effect on its users. There is an idea that social comparison creates a standard to measure what people think is good or bad (Langer, Pirson, & Delizonna, 2010). In Langer, Pirson, and Delizonna's (2010) study, the researchers found that when people make mindless social comparisons (i.e., comparing oneself without realizing it), they are more likely to accept their comparison at face value without considering whether the criteria makes sense for an accurate comparison. This could have a negative effect on oneself. However, a social comparison that is made while being mindful, or having awareness of making a social comparison, could have a positive effect as people are aware of the differences between themselves and the comparison target without judging themselves.

The researchers posited "two modes of social comparison processes, mindless and mindful" (Langer, Pirson, & Delizonna, 2010, p.69) exist. The first, mindlessness social comparisons, would have consequences as to how a person feels towards themselves overall. The second, mindfulness social comparisons, would allow the person to realistically evaluate themselves by understanding who they are through self-awareness. Another good point the researchers made is that when making social comparisons, contextual information, such as standards, or ways of evaluating criteria; "what is good now, is not good later" (Langer, Pirson, & Delizonna, 2010, p. 70), change. To put it another way, how they perceive themselves may change depending on the time and situation. Depending on what people see on social media and

how they interpret it, I think nutritional posts could help influence healthy eating behavior, or eating intention.

Social Comparison

Generally, most people see social comparison as a part of everyday life (Langer, et. al., 2010). People involuntarily compare themselves to others when making judgements about other people. This spontaneous act of self-comparison occurs when people routinely judge others (Mussweiler & Bodenhausen, 2002). People engage in social comparisons to measure how relatable other people's successes and/or failures are to themselves. They do this by comparing "their own characteristics, fortunes, and weaknesses to those of others" (Mussweiler, Ruter & Epstude, 2005, p. 33). Previous researchers have posed three fundamental questions when researching social comparison. The first is why do people participate in social comparison; the second is who do they compare themselves to; and finally, how do the comparisons shape how they see themselves? (Mussweiler, Ruter & Epstude, 2005). Previous research has also suggested that people use social comparisons because it is an easier way to process information when there is something to compare it to (Mussweiler, Ruter & Epstude, 2005). These comparisons may shape how people see themselves by the influence of accessible knowledge that is used as a basis for the evaluation.

A favorable outcome from being exposed to an upward comparison target is that one can strive towards self-improvement. Some people might be motivated by an upward comparison target to eat healthier, and work harder on practicing healthy habits; however, a negative outcome could be that if one does not practice self-care, then one may feel dejected and give up, with the mindset of "I'll never be like that person, what's the point" and continue to eat unhealthy foods or have an unhealthy lifestyle. Upward social comparison involves comparing oneself to people who are doing better; this is said to "inspire and motivate individuals" (Schokker, et al., 2010, p. 438), as well as provide the motivation for self-improvement. In

contrast, downward social comparison is when people compare themselves to others who they think are less capable than themselves. They look down on people who aren’t as good as they think they are.

Regulatory focus

Regulatory focus is made up of "self-regulation with a promotion focus and self-regulation with a prevention focus" (Schokker, et al., 2010, p. 438). A promotion focus means how focused one is on achieving a positive outcome, while prevention focus has to do with avoiding negative outcomes. Studies have suggested that if one's social comparison matches their regulatory focus they may be more motivated to improve their health (Schokker, et al., 2010) and they may be motivated by either a promotion or prevention target (Lockwood, Jordan & Kunda, 2002). These studies have suggested that if social comparison matches regulatory focus, then people may be more motivated to change.

Another thing that might matter is peoples promotion or prevention focus. When someone is promotion focused they are focusing on what it is they want to attain. A promotion focused individual is more likely to be motivated by positive role models and are more likely to strive to "achieve an ideal self" (Lockwood, Jordan & Kunda, 2002, p. 854). A prevention focused individual is driven by preventing or avoiding disasters, or negative outcomes (Lockwood, Jordan & Kunda, 2002). An individual who is prevention focused is more likely to be motivated by negative role models which encourage them to avoid failure by creating prevention strategies. Examples of both concepts would be someone who is promotion focused might make a New Year's resolution to exercise to become healthier, whereas someone who is prevention focused may make New Years resolution to exercise to avoid becoming unhealthy. In regards to my study, based on previous research, I think that people will have different responses to upward and downward social comparison. Overall, I think that people will react differently or may have different eating intentions depending on if they see an upward or downward social comparison target.

Similarity

I used Mussweiler's Selective Accessibility model, as a guide to create my androgynous target. The Selective Accessibility model assumes that when comparing yourself to others who are like you, then you would feel similar to them. However, when comparing yourself to someone dissimilar to you would make you not feel similar to them. The Selective Accessibility model uses a hypothesis-testing method for the comparison process. The author assumes that people consider the attributes of the person they are comparing themselves to, which helps them form a basis to their comparison. For example, to compare your level of healthy eating to that of a fitness/nutrition blogger, you may start with the hypothesis that you are similarly healthy, in terms of eating or fitness habits to the blogger. The Selective Accessibility model would then help you figure out your hypothesis by testing for similarities.

In Mussweiler's study, participants were asked to compare themselves to "Emily," a social comparison standard created by the author. There were two different descriptions of "Emily," a high-assertive version, and a low-assertive version. The high-assertive "Emily" was described as someone who "pursues her interests, defends her opinion in discussions, and often gets her way with her friends as well as her professors" (Mussweiler, 2001, p.41), while the low-assertive "Emily" was describes as someone who is "willing to compromise, very considerate in discussions, and often gives in to others" (Mussweiler, 2001, p. 41). The authors pretested the two versions of "Emily" and found that the more assertive version was judged to be much better in getting her way. The author also assessed consequences of what comparing oneself to others had on the participants assertiveness.

Participants were divided into two groups, one half received the high-assertive “Emily” while the other received the low-assertive “Emily.” They were told to compare themselves to the standard they received. Half of the participants were told to compare “Emily” to themselves, while the other half was told to compare themselves to “Emily. Similar characteristics of men and women’s behavior were selected so gender differences would not play a role in their results. Mussweiler found that as predicted, when the participants compared the “other” to their “self” higher assertiveness was seen, however, when the participants compared themselves to the “other” the participants saw themselves as higher in assertiveness when compared to the low-assertive “Emily.” When participants compared the other with the self, then they saw themselves as more similar to the target – when the target was high in assertiveness, they thought they were higher in assertiveness. And when the target was low in assertiveness, they thought they were low in assertiveness. Mussweiler’s results suggest that there could be self-evaluative consequences when people are presented with a social comparison standard and asked to either compare themselves or compare the standard to themselves. Mussweiler’s past research suggested that perceived similarity could moderate people’s responses to social comparison information. Based on previous research, I think that if people are presented with a target that they think is similar to them, then they will plan to act similarly to the target.

Hypotheses

Most research around social comparison theory examines how people feel when presented with comparison targets. My study aims to explore how comparison targets on social media can be used to change people's behavioral intention. Because there is likely to be individual variability with respect to how people respond to upward and downward social comparison, we will also look at regulatory focus. Regulatory focus says that when people are promotion focused and presented with an upward comparison target then they are more likely to positively change their behavior, and when prevention focused people are presented with a downward comparison target they will be more likely to positively change their behavior. Previous research suggests that regulatory focus matters in terms of how people respond to upward and downward social comparison.

With respect to regulatory focus, I am looking to see if this construct moderates the association between social comparison and eating behavior intentions. Specifically, I am expecting that people who are promotion focused will do better (i.e., have healthier eating intentions) when they see healthy eating portrayed on social media, while people who are prevention focused will do better when they see unhealthy eating portrayed on social media. Specifically, I will present people with either an upward social comparison target or a downward social comparison target and examine their behavioral intentions.

The possible role of regulatory focus can be studied by using promotion and prevention focus measures as part of our study. I expect that people who are promotion focused are more likely to be inspired by upward social comparison information. In other words, when people who are promotion focused and they see someone they think is doing better than them, they are more likely to be motivated to be like them. However, people who are prevention focused and are

presented with a downward comparison target are more likely to change their behavior to make sure they do not become like the downward target.

Which brings us to my hypotheses. I predict that when someone who is promotion focused is presented with an upward comparison target, they are more likely to eat healthy. Similarly, when a promotion focused person is presented with a downward comparison target, they will be more likely to eat healthy. I also predict that when someone views an upward comparison and feels similar to the target they will be more likely to intend to eat healthy.

Thesis Process

Prior to the beginning of my thesis tutorial semester I wanted to research Impression Management, so I read the book Snoop, by Sam Goswell. I learned that Impression Management has to do with the way we form impressions of other people and how people try to manage the impressions they try to convey to others. Goswell suggested that we use the artifacts that people leave behind to form impressions of those people. Another idea from his book was that people may purposefully manage the impression they are making to others. Another thing I learned was that the impressions we form about other people based on how they present themselves can be pretty accurate.

It took a few weeks to narrow down my topic, as I found many concepts interesting, but since I couldn't write about everything I had to focus on what I was really interested in studying. Part of the thesis tutorial and thesis semester process included presenting ideas in the thesis semester and then describe where you are with your current study during your thesis semester at a colloquium. A colloquium is a gathering where you may present your topics or papers. This was very helpful, because after I presented my topic I received valuable feedback from Dr. Ramer, the professor who lead the colloquium. In my thesis tutorial semester, I decided that my big question revolved around many theories and concepts. I originally started my research around the theory of impression management, which is how you manage the impression you make on others and how you want people to see you. My thesis tutorial research has led me to ask the question, "how can we use social media to improve healthy eating?" Within that I looked at social comparison, which is when one compares themselves to someone who they think is better or worse than them. My thought process around upward social comparison when it came

to healthy eating, was that I would compare myself to the healthy fitness blogger who has a super healthy lifestyle, and then I would want to eat like them. And for downward social comparison, I would compare myself to the unhealthy food blogger that posts decadent food porn like photos, ex: ice cream floats filled with candy and sweets, although I might enjoy those foods from time to time, I would not want to eat like that person.

I wanted to test how people would react to upward and downward social comparison by examining the following two ideas, regulatory focus and social comparison. The first, was regulatory focus – which suggests that there are two ways people can approach life and goals. People can have a promotion focus, where they focus on good things, or a prevention focus- when they focus on how to avoid bad things. I thought that people who were promotion focus- and received an upward social comparison, would have healthy eating intentions. I thought people who were prevention focused and received a downward focus target would also have healthy eating intentions because they wouldn't want to be like the downward target. Prevention focused people are avoiding the negative repercussions of what could happen if you predominantly eat unhealthy foods, which would be an unhealthy lifestyle.

The last thing I thought might matter was to look into how similar or dissimilar people see themselves to this target. If they saw themselves as similar to the upward social comparison target I thought they would eat healthier, and have an "if they can do it so can I" mentality, and would more likely follow a healthier lifestyle. I thought that people who felt dissimilar to the downward comparison target were also more likely to have healthy eating intentions because they would think they are not like the target.

Finding Measures

There were many standardized measures that I thought would work for my study. Narrowing down my choices was not easy but in the end I had to pinpoint what I really wanted to drill down on. I thought the Mussweiler (2001) study that created very thorough descriptions of "Emily," a girl who in one scenario was highly assertive and in another scenario was low in assertiveness. I modeled my version of "Pat" after Mussweiler's "Emily," however, I would suggest that if this study is repeated, to make the future version of "Pat" more relatable and descriptive. I found the Promotion and Prevention Scale from an article about regulatory focus and how it could determine peoples motivation when presented with positive or negative role models (Lockwood, Jordan & Kunda, 2002). The questionnaire I used to assess participants' typical exercise and diet behavior was from an article that examined perceived close social support and health practices among men and women. Something interesting they found was that women benefited more when they thought they received more social support than men did. The author suggests this could be because some women respond to stress by caregiving (Jackson, 2006). The question I choose to measure eating intention came from a study by Payne, Jones, & Harris, 2004). The authors used the theory of planned behavior (TPB) to measure healthy eating intention. The results found that the theory of planned behavior successfully predicted intention and behavior. In fact, the authors found intention to be the best predictor of behavior in their study. Something I discovered while looking for appropriate measures is that measuring healthy eating behavior is complex, as people have different ideas as to what constitutes healthy eating behavior and in some ways, it is subjective. There are many different concepts and theories to measure eating intention, and I think it's important to continue finding new ways to understand

how to turn healthy intentions into following through with those intentions into healthy actions, or behaviors.

Institutional Review Board

Before conducting my study, I needed to get approval from the Institutional Review Board. The Institutional Review Board (IRB) requires researchers to submit detailed proposals of what you intend to study and how you plan on working with participants. The IRB was created to protect the rights and welfare of human participants in research studies. If you were designing a study where you had to put people through any kind of mental or physical distress, the IRB will evaluate the risks and benefits. Risk is not only physical harm, but also psychological, social or economic. A researcher cannot damage participants' reputations (social risk), or hurt their ability to earn a living (economic risk). Because my participants were anonymous, I was eligible to fill out an exempt form, which is less rigorous than studies that require the full IRB committee to review and approve their study.

Putting my IRB proposal together was quite a challenge. I went through several revisions but in the end, Dr. Frye and Dr. Sischo helped me streamline my thoughts into a cohesive proposal. First I had to write up a summary of the purpose of my study and discuss why I chose the topic I did, and then back it up with relevant, peer-reviewed research. Part of the IRB proposal requires you to be very specific about why, what and how you are studying what you are studying. Then I had to include IRB's supplementary information application. Followed by the measures I used along with citations of where they came from. Basically, anything the participant will see, is what I had to include in the proposal. Additionally, I had to create an informed consent, which stated that the participants participation was voluntary, and they could stop at any time, along with Amazon Mechanical Turk's terms and conditions and policies.

Amazon Mechanical Turk

Amazon Mechanical Turk (M Turk) is a crowdsourcing cite that many researchers use to collect data from a wide variety of participants (Paolacci, et. al., 2010). Human participants are referred to as "workers," employers are called "requestors," and the tasks are called Human Intelligence Tasks (HIT's; Paolacci, et. al., 2010). Good work will be paid in the amount the requestor decided on, usually somewhere between $.01-$1.00 per task. Work that is of poor quality, for example, if it looks like a participant rushed through the survey and didn't read the questions, just to receive payment, could be punished by refusing payment or blocking a worker from future tasks (Paolacci, et. al., 2010). Researchers have studied the expense and quality of data from both population-based Internet panels and crowdsourcing samples (Weinberg, Freese & McElhattan, 2014). Weinberg, et. al's study consisted of three vignette experiments where they compared the results using both crowdsourcing samples and GfK (a population-based model). In this study the three vignette experiments, in other words, hypothetical situations that the researchers created, revolved around employment discrimination. For example, one of their vignettes involved a scenario that had participants decide whether sexual harassment occurred in a workplace scenario. The researchers found that M Turk's data was better than GfK's data, and the researchers surmise that this could be the case because they saw "fewer problem respondents" (Weinberg, Freese & McElhattan, 2014). Although, in defense of the population surveys, the researchers also point out that population surveys are intended to measure populations as a whole, and when measured accurately include real people who are "inattentive and incompetent" (Weinberg, Freese & McElhattan, 2014). Whereas, M Turk's higher quality responses may have something to do with "professional respondent's" who may be younger and more familiar with the internet (Weinberg, Freese & McElhattan, 2014).

Statistical Analyses

After I used M Turk to collect data I then had to analyze the data on SPSS. SPSS stands for Statistical Package for the Social Sciences. SPSS is used to edit and analyze data from various sources, such as, “scientific research, a customer database, Google Analytics or even the server log files of a website” (“SPSS-What is it?” 2018). I used a regression because I wanted to see if there was a connection between the variables. The regression I used consisted of two how much variables and an interaction. For example, “how much promotion/prevention someone had” and “how much upward/downward comparison” someone felt, could predict the interaction, “healthy eating intention.”

After running the regressions, I had to make sense of the output. The important numbers we cared about were the p-value, the unstandardized coefficient, and the coefficient’s standard error. The p-value tells us whether the results are significant, which is described as $p<.05$, or not significant, which is described as $p>.05$. When p is less than .05, this means that we reject the null hypothesis and there is less of a chance that we made a Type I Error. Rejecting the null does not mean that the results are absolutely true, instead, it means that our findings most likely did not occur by chance and there could be a connection/relationship between the variables.

In my discussion I explained that my study had high internal reliability. This is important for two reasons. The first, is that if I used unreliable measures and received significance, it would have been most likely due to poor measures and not an accurate measure. And the second reason is if I had low reliability, then the consistency of data would not be reliable, I might not have been measuring what I intended to measure. Thankfully, this was not the case, as my study had high internal reliability, which means that the multiple questions I used to measure the concepts of social comparison and regulatory focus were consistent and measured what I intended to

measure. The unstandardized beta value tells us which direction the correlation is going and how strong that relationship is. The coefficient's standard error captures how far away the data are from what we would predict by the model, and is always a positive number.

What I Learned About Conducting Research

I learned many things about what it the processes necessary to conduct a research study from start to finish. Creating an experimental study is not the same as writing a paper about a book you just read. An experimental study is multi-faceted and there is a lot of research that goes into choosing your topic and then whittling it down until you have the precise concept(s) you are interested in. I decided to use M Turk to collect participant data because I wanted a broader range of data than just using students at Post. Also, I don't think I would've received as many participants if I tried to recruit on campus. M Turk allowed me to set an amount of participants I needed and I had all of my data within two days. That was really exciting! I learned how to conduct a regression and I chose additional correlations to run. I had to learn to read and understand SPSS data and I also learned how to communicate what the data meant in methods section. Overall, I learned what makes a thorough research paper and the hard work it takes to complete the paper.

What I Learned From This Study

I picked a topic that has interested me since I took the Economics of Obesity class with Dr. Dolar and I was really happy that I could apply what I learned in that class to my research. It made reading the articles fun as I could apply it to previous knowledge as well as use the research to improve my own lifestyle. I learned that intention predicted behavior in prior studies, and although I did not measure behavior in this study, it might be a good idea for future research to include behavior when studying eating intention. I was really surprised at the results of my study. I learned that just because you think something makes sense, the data might not reflect that. I was happy to see that people who are promotion focused were more likely to intend to eat healthy. This made sense to me, because if someone is promotion focused, then they are focused on positive outcomes, and eating healthy would have a positive influence on people's health.

I think picking a topic that interests you is important because you will spend two semesters researching and writing about your topic, it is not something to take lightly.

This thesis continues a line of research that I've been interested in throughout my entire undergraduate career, looking at eating choices and food behavior. For instance, one semester, I took an economics of obesity class, and I researched meal timing and its effect on BMI with a classmate. We thought that our study would have agreed with previous research that people who ate late at night then went to bed shortly after (less than three hours after eating) would have higher BMI's (Reid, Baron, & Zee, 2014). Previous have shown that when people stop eating after a certain time, i.e; three hours before bedtime, their caloric intake is actually lower than people who ate later studies (Fuse, Hirao, Kuroda, Tahara, & Shibata. 2012) and those same studies have suggested that meal timing is an important factor in a healthy BMI, as it aids in digestion.

We only looked at students who were currently enrolled at Post. We found the opposite of what we thought we would find, instead of seeing higher BMI's when students went to bed late, we found that our data seemed to strongly suggest that the time when students wake up matters, not so much when they go to bed. We found that the earlier the students woke up, the higher their BMI. I don't think we had enough participants for this study, which could have been why we failed to reject the null hypothesis. Conducting this study early on in my academic career allowed me to see how important data collection is, as not having enough, or not having good data could ruin your analyses.

I did not consider time of day in the current study. However, it is possible that future research could consider meal timing when measuring social comparison and eating intention. Perhaps it could make a difference what time of the day someone views a social comparison target, for example; if it is later in the day and the participant is puckish, or slightly hungry, the participants' eating intention may change from healthy to unhealthy depending on how they feel at a certain time of day. Or, if a participant ate before taking the survey, they may answer differently in regard to their eating intention than if they were hungry. It is possible that meal timing may make a difference in people's eating intentions.

Methods

Participants

There were 186 participants, recruited from Amazon Mechanical Turk. (M-Turk) is an online survey platform that allows members to participate in research for compensation. Members of M-Turk must have access to a computer and be over 18 years old to be eligible for membership. Random assignment was used to place the participants in one of the four conditions. Participants ranged in age from 19 to 70 (M = 36.49, SD = 12.04). One hundred seventy five participants submitted their weight. The participants weight ranged from 90 pounds to 311 pounds and their mean weight was 168.94 (SD=44.12). Body Mass Index (BMI) were calculated. The mean BMI of 141 participants were 26.07 (SD=6.62).

Materials

Upward and downward social comparison. Participants were presented with one of two social media posts. The upward social comparison photos consisted of two photos. The photos were from various Instagram food focused accounts. The first photo was of a healthy fruit smoothie and the second photo was of healthy tacos. What made the tacos healthy were that the steak was grilled and there were vegetables in the photo as well as the portion size was small. The downward social comparison photos also consisted of two photos. The first photo was of an ice-cream milkshake, rimmed with frosting and sprinkles and stuffed with candy and cake. The second photo consisted of oversized, fried, tortilla shell tacos that were stuffed with ground meat and very few vegetables.

Similarity. Similarity was manipulated by creating an androgynous target that is either an upward (healthy) comparison or downward (unhealthy) comparison. The difference in each

survey was how I asked about perceived similarity by manipulating the question. I.e.; (A.) "how similar are you to Pat," vs., (B.) "how similar is Pat to you." Participants were asked to rate on a Likert scale from 1 (not at all similar) to 7 (completely similar) how similar they felt to the target. I used Mussweiler's Selective Accessibility model as a guide to create my androgynous target. The Selective Accessibility model assumes that when comparing yourself to others who are like you, then you would feel similar to them. However, when comparing yourself to someone dissimilar to you would make you not feel similar to them.

Eating intention. Eating intention was measured by giving participants a definition of healthy eating, "Healthy eating is defined as around one third of what you eat each day should be fruit and vegetables, one third should be bread, potatoes, pasta and rice and one third should be split between milk and dairy products and meat, fish, pulses (ex.; legumes, beans, lentils, peas) etc. Fatty foods e.g. French fries, chips, and sugary foods e.g. cake, sweets should be kept to a minimum." This measure was adapted from Payne, Jones and Harris' study. A single item measure adapted from Paisley and Sparks (1998) study was used to ask, "How healthy do you plan on eating tomorrow?" Participants were asked to indicate their healthy eating intention for the following day by using a Likert scale from 1 (very unhealthy) to 7 (very healthy).

Promotion and prevention focus. I adapted Lockwood, Jordan and Kunda's (2002) Promotion/Prevention Scale for our study. There were ten promotion questions, such as "I often think about the person I would ideally like to be in the future" and "I often think about how I will achieve healthy eating success." The possible range of scale scores for promotion is 10-70. There were 8 prevention questions, such as "My major goal in my diet right now is to avoid becoming unhealthy" and "I often worry that I will fail to accomplish my health/wellness/diet

goals." The possible range of scale scores for prevention was 8-56. The original scale used 1 (not at all true of me) to 9 (very true of me), however we changed the Likert scale from 1 (not at all true of me) to 7 (very true of me). Higher scale scores for the prevention questions meant the participant was more prevention focused, and higher scale scores in promotion scales, meant the participant was more promotion focused. Similar to the previous study, I had high internal reliability. The Internal Reliability for this scale in this study for promotion was Cronbach's Alpha = .93 and the internal reliability for prevention was Cronbach's Alpha = .86.

Procedure

Four forms of the survey and a randomized link were created which brought participants, anonymously, to one of the four conditions. Participants were randomly assigned. After finding the study on Amazon Mechanical Turk, participants, who were registered with Amazon Mechanical Turk first encountered an informed consent which required the participants to enter their M-Turk worker ID number and then click continue to move forward. By clicking the "continue" link the participant gave their consent. Then, participants read about "Pat," an androgynous target. The difference in each survey was how perceived similarity was asked by manipulating the question. I.e.; (A.) "how similar are you to Pat," vs., (B.) "how similar is Pat to you," followed by two food photos that were either healthy or unhealthy. Page three had a definition of healthy eating, followed by one question that measured eating intention.

Page four consisted of measures from Todd Jackson's (2010) health practice items. The two sections I included were diet and exercise. Page five consisted of measures concerning promotion or prevention behaviors. Page six will consist of demographic questions. Finally, the participants were redirected to a thank you page and compensated thirty cents on Amazon Mechanical Turk for their participation.

Condition one. This condition consisted of an upward comparison target and participants were asked “How similar are you to Pat?” The photos in this condition were healthy food photos.

Condition two. This condition consisted of an upward comparison target and participants were asked “How similar is Pat to you?” The photos in this condition were unhealthy food photos.

Condition three. This condition consisted of a downward comparison target and participants were asked “How similar are you to Pat?” The photos in this condition were healthy food photos.

Condition four. This condition consisted of a downward comparison target and participants were asked “How similar is Pat to you?” The photos in this condition were unhealthy food photos.

Results

To test my hypotheses, I conducted four regressions and tested for an interaction that predicted healthy eating intentions. Social comparison (upward/downward social comparison) did not yield significant results. Perceived similarity did not yield significant results. Promotion/prevention yielded partial significance that was related to healthy eating intention. I thought the strength of these connections between healthy eating intention and whether or not they were promotion or prevention focused would be different depending on whether they received an upward or downward comparison and whether or not they felt similar to the target. However, that is not what I found. In this study, perceived similarity did not affect eating intention.

Upward target and promotion focus. The first regression examined upward target and promotion focus. The outcome variable was healthy eating intention. The coefficients suggest that the more promotion focused participants were, the healthier their eating intentions were. This was statistically significant $\beta(.008)=.038$, $p<.05$. There was no statistically significant relationship between upward/downward target and eating intentions $\beta(.213)=-.174$, $p=.416$ There was no difference in the relationship between whether or not the participant received an upward or downward target and their healthy eating intention depending on degree of promotion focus, $\beta(.016)=-.005$, $p=.752$. These results partially support my hypothesis.

Downward target and prevention focus. The second regression examined upward/downward target and prevention focus. The outcome variable was healthy eating intention. I found no statistically significant difference in eating intention depending on whether participants were given an upward or downward target $\beta(.222)=-.334$, $p=.135$. I also found no statistically significant relationship between prevention focus and eating intention,

β(.010)=–.012, *p*=.233. The interaction between social comparison target and prevention focus was not significant β(.021)=-.006, *p*=.779. These results did not support my hypothesis.

Similarity and promotion. The third regression examined similarity and promotion. I thought that the more promotion focused someone was, the more likely they were going to have healthy eating intentions. I thought this would be especially likely to be true if people were made to feel similar to the comparison target. We found no statistically significant difference in eating intentions depending on whether people felt similar to or different from the target, β(.209)=-.312, *p*=.138. There was a statistically significant relationship between how promotion focused a person is and that person's healthy eating intentions, β(.008)=.039, *p*<.05. The relationship between promotion and eating intention did not differ with whether participants were in the similarity or no similarity condition, β(.015)=.003, *p*=.843. In this study eating intention is not different depending on whether participants view themselves as similar to the target.

Similarity and prevention. The fourth regression examined similarity and prevention. I thought that the more prevention focused someone was, the more likely they were going to have healthy eating intentions. None of these factors predicted healthy eating intention. There was no statistically significant relationship between similarity and eating intention, β(.223)=–.246, *p*=.271. There was no statistically significant relationship between prevention and eating intention β(.010)=–.013, *p*=.197. The relationship between prevention and eating intention did not differ with whether participants were in the similarity or no similarity condition,, β(.020)=–.017, *p*=.419.

Supplemental Analyses

We then conducted four tests for correlations to determine whether there was a relationship between the BMI and the variables: promotion, prevention, healthy eating intention and self-report of physical health.

The first correlation was run between BMI and promotion. There was no significant connection between BMI and promotion focus, throughout, $r = -.14$, $p = .11$

The second correlation was run between BMI and prevention. There was a significant connection between BMI and prevention. This connection suggests that the higher your BMI, the more your prevention focused. This also may suggest that the higher your BMI, the less healthy you are, and the more your focused on avoiding unhealthy food, $r=.19$, $p < .05$.

The third correlation was run between BMI and how healthy do you plan on eating. There was a significant connection between BMI and how healthy do you plan on eating, $r=-.25$ $p<.05$. These findings suggest that higher BMI predicts less healthy eating intention.

The fourth correlation was run between BMI and how physically healthy do you think you are. There was a significant connection between BMI and how physically healthy do you think you are, $r=-.4$, $p<.05$. The higher BMI suggests lower report of health.

Discussion

My study was about regulatory focus and social comparison and I wanted to see if those concepts could predict healthy eating intention. Although we did not find statistically significant association in our original hypothesis, overall, we found a statistically significant relationship between people who are promotion focused and intention to eat healthy.

I predicted that when someone who is promotion focused and is presented with an upward comparison target, would be more likely to eat healthy. I also thought that when a promotion focused person was presented with a downward comparison target, they would have been more likely to eat healthy. Although I found that promotion focus predicted eating intentions, there was no connection between how similar the participant felt towards the target and eating intention. I also predicted that when someone viewed an upward comparison and felt similar to the target they would have been more likely to intend to eat healthy. Neither hypothesis was supported, and this can be explained under strengths and limitations. Something that might explain these findings is that some promotion focused people have high levels of self-efficacy (Schokker, et. al., 2010). Those finding could translate to this study to mean that it is possible that promotion focused people are already motivated to eat healthy and seeing an upward or downward comparison target might not make a difference if they are already have intentions to eat healthy. Mussweiler's study found that people thought the comparison target was like them, felt similarity to the target "Emily." I did not achieve that result in this study. Neither did I find that when compared with someone dissimilar yield a result. In my study, neither similarity or dissimilarity played a role in influencing eating intention.

Just like previous research, I found high internal reliability in the measures of promotion and prevention focus (Payne et al., 2004; Lockwood et al., 2002). This suggests the scales that were used by participants in this study were reliable measures as per previous research that used them in the past. The purpose of my study was to see how social media could influence healthy eating intention by examining social comparison theory and regulatory focus. I wanted to see how social comparison mattered in peoples behavior and how it predicted eating intention.

Regulatory focus is made up of "self-regulation with a promotion focus and self-regulation with a prevention focus" (Schokker, et al., 2010, p. 438). A promotion focus means how focused one is on achieving a positive outcome, while prevention focus has to do with avoiding negative outcomes. That being said, studies have suggested that promotion focus individuals are inspired by upward social comparison, while prevention focused individuals are inspired by downward social comparison information. Studies have also suggested that if one's social comparison matches their regulatory focus they may be more motivated to improve their health. Previous research suggests that regulatory focus matters in terms of how people respond to upward and downward social comparison.

Previous research has suggested that upward social comparison involves comparing yourself to people who are doing better than you; which is said to "inspire and motivate individuals" (Schokker, et al., 2010, p. 438), as well as provide the motivation for self-improvement. In contrast, downward social comparison is when people compare themselves to others who they think are less capable than themselves. They look down on people who aren't as good as they are, or in the case of my study possibly people who don't eat healthy. In Schokker, et al's study, the upward comparison group consisted of a positive role model that changed their diet to eat healthier, while the downward comparison target group consisted of diabetics who

continued to eat poorly. Although in contrast with our findings in this study, previous research has found that healthy eating intention was predicted by feelings of similarity.

My study's comparisons differed, in that I did not have as thorough of a story as Schokker's and my research did not yield statistical significance when it came to whether peoples healthy eating intentions were influenced by their regulatory focus. This could have been a limitation, as people may not have been able to connect with the androgynous target I created. This continues to be an important area to study as previous research has suggested that regulatory focus can be used to understand what motivates someone (Lockwood, et. al., 2002).

Strengths and limitations

I have identified several strengths and limitations of the current study. My study had high internal reliability which suggests that using pre-existing scales was a strength when measuring promotion/prevention and this also suggests that participants were paying attention when they answered the questions. Even though it was not part of the primary hypotheses I conducted supplemental analyses using BMI. My BMI correlations made sense, since I found relationships between BMI and prevention focus, which suggests that people who have higher BMI's may be more prevention focused. People with higher BMI's might be more focused on avoiding unhealthy foods. I also found a relationship between BMI and healthy eating intention, which suggests that although the previous correlation suggests that people with higher BMI's might be prevention focused, this correlation tells us that people with higher BMI's are less likely to intend to eat healthy. Although people with high BMI's may be focused on avoiding unhealthy food, this correlation suggests that these people might not want to eat healthier. There could be a few reasons for this. Perhaps people in this category might be happy with the way they are, or perhaps their BMI is higher due to muscle, or they might not understand what healthy eating is. The last correlation I ran was between BMI and self-report measure of physical health. This absolutely made sense as I found that people who had higher BMI's reported lower physical health. This suggests that people were honest in the way they answered the questions.

While BMI may be a good indicator of classifying adiposity, or measuring fat in children (Freedman & Sherry, 2009), measuring obesity through BMI is sort of rudimentary. Recent studies have suggested that it is not is not the best indicator of measuring obesity in adults, as it does not consider the weight of muscle. In one study, adolescent athletes were considered obese according to their BMI, however when the researchers used the skinfold measurement, 62% were

false positives (Etchinson, et al., 2011). Even so, asking participants for height and weight information to calculate BMI is relatively non-invasive, and other methods of calculating BMI are costly, such as using imaging equipment like an MRI or cat scan. If someone replicates this study in the future, they may want to recruit participants that will allow the researcher to use other methods of testing for obesity, such as skinfold measurement test, and checking vital signs (heart rate, blood pressure and temperature). Past studies have suggested that it could be helpful to look at health behaviors and theories of motivation (Payne, et al., 2004), as people may have different reasons to either engage or avoid health behaviors. Also, future research should consider that many homes are not typical two parent homes where one parent works while the other stays home to raise a family. I think future research should ask participants how many parents or guardians were in the home during their childhood as well as measuring socioeconomic status.

I think M Turk is both a strength and a limitation. I think it is a strength in that researchers can collect a large quantity of data in a short period of time, and for the most part it is mostly useable. Other strengths are that the subjects are diverse, payment is through Amazon Mechanical Turk, and you can review each participants submission before issuing payment- just in case it appears a participant rushed through the survey (Paolacci, Chandler & Ipeirotis, 2010). Another strength is that both the requestor and participants are anonymous. Paolacci, et. al. (2010) found that M Turk could strengthen internal validity, since experimenters never interact with anyone, thus reducing experimenter bias. However, a limitation is that sometimes there are people on M Turk who rush through surveys without taking an appropriate amount of time to read through each question. This could be a limitation for any anonymous survey as well. Another limitation, that I did not find in research, but I think could pose a problem, is if one

person has multiple M Turk accounts and repeatedly takes the same survey, which could skew results.

I thought there would be a stronger connection between the upward target and promotion focus, but I did not find support for that. Although “Pat” was similar across all four versions of the surveys, which reduced confounds, one possible reason why “Pat” was a limitation could be because people did not connect to the target. Previous studies (Mussweiler, 2001; Schokker, et. al., 2010) created detailed comparison targets while my studies target was a vague, androgynous target that I created in the hopes that it would subtlety appeal to both males and females. I think “Pat” not being vivid enough, was a limitation of my study, and in the future I would create targets that are more notable or relatable. Another limitation was that I only included a promotion focused eating intention question. Future research should consider adding a prevention focus eating intention question, along with a description of junk food such as, “How likely will you avoid junk food tomorrow?”

Directions for future research

Future research should consider applying mindfulness to similar studies. The current study looked at intention predicting behavior; plan to eat healthy or not, as opposed to actual behavior; what people eat. Since behavior is present tense, which relates to being mindful, in other words being in the present moment, being mindful is living up to your intentions. The Theory of Planned Behavior, on average, suggests there is agreement between plans and behavior but they do not always necessarily go together. Just because people may intend to do something, like eat healthy, their behavior might not match their intention. People may unintentionally have a mismatch between intention and eating behavior because of mindless eating.

According to Susan Albers, Psy.D., mindless eaters "overeat to the point of feeling full, eat because you are under pressure (i.e., eating a bag of chips while writing a term paper that is due in four hours)", and skipping or eating meals on the go. Albers suggests that it is important to consider "where, what, and why you eat" (2006). The reason for this thought process is to better understand why you eat and learn moderation. Mindful eating does not limit or restrict foods, instead, mindful eating focuses on being aware and in the present moment when you are eating. When one eats mindfully they are aware of when they are full (Moor, Scott & McIntosh, 2013). Researchers have found that when people are more mindful when eating they are less likely to eat impulsively and therefore consume less calories (Jordan, Wang, Donatoni & Meier, 2014) which reduces overeating. This idea reinforces the thought that mindfulness, in other words, being aware, can be used to encourage heathy behavior. Mindful eating gives people control over their eating behavior and habits.

Future research should consider looking at actual eating behavior. For example, researchers could give the promotion/prevention scale to participants before monitoring people with different snacks in front of them and see what they decide to eat. They could then see if promotion focused people would pick the healthy snacks. Also, in regard to regulatory focus, in relation to downward comparison, studies that have suggested that this may serve as a warning to the future self and may motivate individuals to change. It might be interesting to further study how downward comparisons could influence intention which would in turn alter behavior to eat healthy foods. Future research should also consider creating detailed comparison targets that are notable and are targets that people could relate to.

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Table of Contents:

1. Proposal- Summary of the purpose of my study
2. IRB Application Supplementary Information
3. Citations of measures used
4. Surveys (a-d)
    i. Participants will be randomly assigned to one of four surveys. Page one will have a description of an androgynous target that is either an upward (healthy) comparison or downward (unhealthy) comparison. The difference in each survey will be how we ask about perceived similarity by manipulating the question. I.e.; (A.) "how similar are you to Pat," vs., (B.) "how similar is Pat to you." We hope to induce feelings of similarity, as previous research has suggested that this type of questioning manipulates feelings of similarity.
    ii. Page two will consist of two food photos that are either both healthy or unhealthy options. The reason behind this is that we want people to think of Pat's food choices as either healthy or unhealthy.
    iii. Page three will have a definition of healthy eating, followed by one question that measures eating intention.
    iv. Page four will consist of measures from Todd Jackson's (2010) health practice items. The two sections I am using are diet and exercise.
    v. Page five will consist of measures concerning promotion or prevention behaviors.
    vi. Page six will consist of demographic questions.
5. Informed Consent
6. Exempt form
7. NIH certificate included in a separate attachment.
8. Signature page included in a separate attachment.

The purpose of my study is to see how social media can influence healthy eating by examining the following constructs: social comparison theory and regulatory focus. In terms of social media, the whole inspiration for the study came from people using social media and the idea that, when people use social media, they tend to engage in social comparison by spontaneously comparing themselves to others. I would like to know how social comparison matters in people's behavior. The behavior I am focusing on is eating behavior. However, I will not directly measure behavior. Instead, since previous research and the Theory of Planned Behavior suggest that behavior can be predicted by intentions, in my study I will examine the role of social comparison in people's eating intentions. Obesity is discussed as it effects many people's quality of life and provides some of the context as to why it is important to study eating behavior through measuring people's eating intentions.

Indeed, it is important to study the topic of healthy eating and social media as both are prevalent in our time. While social media is a pervasive mainstay in our culture, obesity should not have to be. According to the Center for Disease Control (CDC), more than one-third (36.5%) of U.S. adults and 17% or children and adolescents (aged 2-19 years) are obese. The website stateofobesity.org ranks U.S. states obesity rates with the highest rate of adult obesity in West Virginia (37.7%) and the highest rate of childhood obesity is in Mississippi (21.7%). This means that across the United States, more than one in three adults, one in six children (ages 2-19) and one in eleven young children (ages 2-5) are obese. https://stateofobesity.org/rates/

While there are many other factors that cause obesity; such as stress or genetics, previous research has linked eating behaviors to obesity. Therefore, it is important to study eating

behaviors, as they relate to obesity, and it is important to continue learning about these behaviors to continue the conversation that prevention is just as important as treating the existing problem. However, because eating behavior can be difficult to study directly, many researchers have studied behavioral intention, rather than the actual eating behavior. In many studies, behavioral intention was a good predictor of behavior. With this in mind, we will use the Theory of Planned Behavior which suggests that people's behaviors can be predicted by their behavioral intentions (e.g., Payne, et. al., 2004).

Therefore, in my current thesis, I will look at eating intentions. One thing that might predict eating intention is social comparison. One goal of my study is to examine how social comparison predicts eating intentions. In particular, I want to know what happens when someone views healthy or unhealthy eating behavior portrayed on social media, and how viewing that post might make a difference in their eating intentions. Social comparison theory states that people determine how they feel about themselves by comparing themselves to others. There are two kinds of comparison, upward and downward. Upward social comparison is when someone thinks the other person is doing better than them and downward comparison is when someone thinks the other person is doing worse than them.

Most research around social comparison theory examines how people feel when presented with comparison targets. Our study aims to explore how comparison targets on social media can be used to change people's behavioral intention. Because there is likely to be individual variability with respect to how people respond to upward and downward social comparison, we will also look at regulatory focus. Regulatory focus says that when people are

promotion focused and presented with an upward comparison target then they are more likely to positively change their behavior, and when prevention focused people are presented with a downward comparison target they will be more likely to positively change their behavior. Previous research suggests that regulatory focus matters in terms of how people respond to upward and downward social comparison.

With respect to regulatory focus, we are looking to see if this construct moderates the association between social comparison and eating behavior intentions. Specifically, I'm expecting that people who are promotion focused will do better (i.e., have healthier eating intentions) when they see healthy eating portrayed on social media, while people who are prevention focused will do better when they see unhealthy eating portrayed on social media. Specifically, we will present people with either an upward social comparison target or a downward social comparison target and examine their behavioral intentions.

The possible role of regulatory focus can be studied by using promotion and prevention focus measures as part of our study. We expect that people who are promotion focused are more likely to be inspired by upward social comparison information. In other words, when people who are promotion focused and they see someone they think is doing better than them, they are more likely to be motivated to be like them. However, people who are prevention focused and are presented with a downward comparison target are more likely to change their behavior to make sure they do not become like the downward target.

In terms of the study design, I am manipulating two different variables: social comparison and similarity to the person portrayed in the comparison. It is important to include perceived similarity because past research suggests that it can also moderate people's responses to social comparison information. Promotion or prevention focus is the predictor variable, while the outcome variable is healthy eating intentions. The experimental aspect of the study is the manipulation of similarity and social comparison direction, and the non-experimental aspect of the study is looking at promotion or prevention focus.

Our subject population will come from Amazon Mechanical Turk, an online survey platform where people may participate in surveys to receive amazon credits. Participants over the age of 18 will be eligible to join this study. We will compensate each participant thirty cents upon completion of the survey. On the requestor instructions page on Amazon Mechanical Turk's Human Intelligence Tasks (HITs), I will use the title "Healthy Eating and Social Media" and include a brief description of the study. The description will say "In this HIT you will be shown a certain scenario and you will be asked to imagine yourself in a particular scenario, and imagine that you have seen something posted on social media. You'll then be asked to answer questions about how you might behave, and you might be asked some questions about your typical behavior." There are no anticipated risks associated with this study. The benefits of this study are that participants will be compensated upon completion of the survey and the results may be of benefit to the field of psychology.

Citations For Measures Used

The exercise and diet questions (to assess participants' typical behavior) came from:

Jackson, T. (2006) Relationships between perceived close social support and health practices within community samples of American women and men. *The Journal of Psychology, 140:3, 229-246,* DOI: 10.3200/JRLP.140.3.229-246

Eating intention question came from:

Payne, N., Jones, F., & Harris, P.R. (2004). The role of perceived need within the theory of planned behaviour: A comparison of exercise and healthy eating. *British Journal of Health Psychology, 9 (4), 489-504.*

Promotion/prevention questions came from:

Lockwood, P., Jordan, C.H., & Kunda, Z. (2002). Motivation by positive or negative role models: Regulatory focus determines who will best inspire us. *Journal of Personality and Social Psychology, 83 (4), 854-864.*

To manipulate the perceptions of similarity I modeled my "Pat" scenario after the "Emily scenario in this article:

Mussweiler, T., (2001). Focus of comparison as a determinant of assimilation versus contrast in social comparison. *Society for Personality and Social Psychology, 27(1), 38-47.*

Perceived similarity questions:

A.

Pat lives in your neighborhood, and goes to the same coffee shop as you. Each day you bump into each other and you've started talking and found that you have a lot in common. Eventually you started following each other on social media.

Based on this description of Pat, how similar do you think Pat is to you?

B.

Pat lives in your neighborhood, and goes to the same coffee shop as you. Each day you bump into each other and you've started talking and found that you have a lot in common. Eventually you started following each other on social media.

Based on this description of Pat, how similar do you think Pat is to you?

A. “Healthy Pat” Photos (upward social comparison condition)

You see that Pat has posted the following pictures after having lunch with friends:

B. “Unhealthy Pat” (Downward social comparison condition)

You see that Pat has posted the following pictures after having lunch with friends:

Measure of eating behavior intention:
Healthy eating is defined as “around one third of what you eat each day should be fruit and vegetables, one third should be bread, potatoes, pasta and rice and one third should be split between milk and dairy products and meat, fish, pulses [ex.; legumes, beans, lentils, peas] etc. Fatty foods e.g. chips, crisps, [French fries, chips] and sugary foods e.g. cake, sweets should be kept to a minimum” (2004).
Payne, Jones, Harris healthy eating question. p493 (cite in methods section)

I changed the UK terms to common terms found in the US. :

“around one third of what you eat each day should be fruit and vegetables, one third should be bread, potatoes, pasta and rice and one third should be split between milk and dairy products and meat, fish, pulses (ex.; legumes, beans, lentils, peas) etc. Fatty foods e.g. French fries, chips, and sugary foods e.g. cake, sweets should be kept to a minimum”

How healthy do you plan on eating tomorrow?

Diet and Exercise Measure (to measure typical behavior)
Please rate on a scale of 0-4 how often you do the following:
0=never, 1=sometimes (1-2 days/week), 2=frequently (3-4x week), 4=very often (5+ times week/daily)

How often do you limit amount of fat in diet
How often do you limit amount in red meat in diet
How often do you eat non-fat dairy products
How often do you limit sugar intake
How often do you eat four servings of vegetables per day
How often do you eat healthy foods
How often do you limit salt intake
How often do you eat a balanced diet
How often do you consume enough vitamins and minerals
How often do you drink eight or more glasses of water per day
How often do you keep track of the number of calories in foods you are eating
How often do you figure out from labels what foods are good for you
How often do you eat junk food*
How often do you eat whole grain foods
How often do you eat food high in fiber
How often do you consume enough calcium
How often do you read food labels
How often do you ignore the total calories in your food*
How often do you consume fatty foods*
How often do you limit the amount of sweets in your diet
How often do you eat fast food*

How often do you exercise vigorously (elevated heart rate and perspiration)
How often do you perform stretching exercises
How often do you avoid exercising*
How often do you get daily aerobic exercise
Do you have a physically active home life
How often do you do exercises that are good for you
How often do you go for regular walks
How often do you do physical exercises you enjoy
How often do you exercise so you are breathing heavily
How often do you make sure you are physically active
How often do you walk or run for a mile or longer at least three times per week

*Please note that items with asterisks were reverse coded and the asterisks will not be present when posted to MTurk.

Promotion/Prevention Scale

Using the scale below, please write the appropriate number in the blank beside each item.
not at all true of me 1 2 3 4 5 6 7 8 9 very true of me

1. In general, I am focused on preventing negative events in my life.
2. I am anxious that I will fall short of my responsibilities and obligations.
3. I frequently imagine how I will achieve my hopes and aspirations.
4. I often think about the person I am afraid I might become in the future.
5. I often think about the person I would ideally like to be in the future.
6. I typically focus on the success I hope to achieve in the future.
7. I often worry that I will fail to accomplish my health/wellness/diet goals.
8. I often think about how I will achieve healthy eating success .
9. I often imagine myself experiencing bad things that I fear might happen to me.
10. I frequently think about how I can prevent failures in my life.
11. I am more oriented toward preventing losses than I am toward achieving gains.
12. My major health goal right now is to achieve my ideal state of health.

13. My major goal in my diet right now is to avoid becoming unhealthy.

14. I see myself as someone who is primarily striving to reach my "ideal self"—to fulfill my hopes, wishes, and aspirations.
15. I see myself as someone who is primarily striving to become the self I "ought" to be—to fulfill my duties, responsibilities, and obligations.
16. In general, I am focused on achieving positive outcomes in my life.
17. I often imagine myself experiencing good things that I hope will happen to me.
18. Overall, I am more oriented toward achieving success than preventing failure.

Demographics

- Please tell us your weight in pounds or KG: Pounds _____ or KG _____

- Please tell us your height: In either Feet or Meters: Feet _____ inches_____or Meters _____Centimeters _____

- What is your gender: Male Female
- Age _____
- Do you live in the Unites States? Yes No
- If yes, which state do you live in? _____
- If no, please tell us what country you live in. _____

- How Physically healthy do you think you are?

Extremely healthy very healthy somewhat healthy not so healthy not at all healthy

- What is your highest level of education? _____
- Check off all that apply: Which social media sites do you use?

Facebook Instagram Snapchat Twitter Other_____ I don't use social media

Long Island University, *POST CAMPUS*

Informed Consent Form for Human Research Participants

You are being asked to volunteer in a research study called "Social Media Use and Eating Intention" conducted by Elizabeth Barcia, an undergraduate student in the Psychology Department at LIU Post, under the supervision of Dr. Nancy Frye, Psychology Department. The purpose of this research is to further uncover the relationship between social media and eating intention and how it affects people's food choices.

As a participant, you will be asked to anonymously complete an online survey that will consist of questions regarding social media use and eating intention. There are no anticipated risks involved in this study and rest assured that your participation is 100% voluntary and you may cease at any time if the study becomes overwhelming for you.

The study consists of 4-5 survey sections of questions regarding social media use and eating intention. You should expect to take about 10-15 minutes to complete the whole survey. Your participation will earn you 30 cents on Amazon Mechanical Turk and it is reasonable to expect that the results may provide information of value for the field of Psychology and related disciplines.

Your identity as a participant will remain anonymous. Your name will not be included in any forms, questionnaires, etc. Results will be reported only in the aggregate. If you are interested in seeing these results, you may contact the principal investigator.

If you have questions about the research you may contact the investigator, Elizabeth Barcia at _elizabeth.barcia_@my.liu.edu or the faculty sponsor, Dr. Nancy Frye at (516)-299-2377. If you have questions concerning your rights as a subject, you may contact the Administrator of the Institutional Review Board, Dr. Lacey Sischo at (516) 299-3591.

Terms and Conditions for Participating: By you opting to participate in this research study, you understand that Amazon will have access to all of the information that you provide via Amazon Mechanical Turk. Please refer to Amazon Mechanical Turk's privacy policy governing the use of this survey. The researcher makes no representations or warranties with regard to Amazon Mechanical Turk's practices or conduct relating to the information you provide. If you do not want to grant the researcher permission to use your information in accordance with the privacy terms of Amazon Mechanical Turk, please do not participate in this survey.

Your participation in this research is voluntary. **You will only be identified by your Amazon Worker ID#.** We will not collect any personally identifiable information. Only Amazon maintains information on your personal identity and does not share that information with us. For this work you will receive $ 0.30.

You understand that you may stop participation at any time. However, you also understand that consistent with MTurk's policy you only receive payment if you complete the survey, AND if your participation is deemed adequate (i.e. nonrandom responding in an appropriate time frame).

You can withdraw from the study at any time by navigating away from the online survey website. You can have your data deleted at any time by contacting Elizabeth Barcia at 516-299-2008.

If you have fully read the above text, by choosing "I confirm", you verify that you are at least age 18 years or older, and give your informed consent to participate.

☐ I confirm my consent to participate ____ /____/____ Date

_____ By entering my age, I am certifying that I am over 18 years old
_____ ***MTurk Worker ID#***

Again, please remember that your participation in this research is completely voluntary. Refusal to participate or discontinue participation at any time will involve **no** penalty or loss of benefits to which you are otherwise entitled.

By clicking continue and submitting responses, you are giving your consent to participate:

Long Island University
Institutional Review Board
APPLICATION FOR EXEMPT CATEGORY REVIEW

Project Title:___Social Media and Eating Intention
_____

A. Investigators:

Faculty Investigator/Sponsor:____Dr. Nancy Frye
_____

Department:_____Psychology
_____

Campus:_____Long Island University-Post
_____

Phone:__516-299-2008
_____Fax:_____Email:_nancy.frye@liu.edu_____-
_____

Student Investigator:__Elizabeth A. Barcia
_____

Department:__Psychology
_____

Campus:__Long Island University-Post
_____

Phone:__516-299-2008
_____Fax:_____Email:elizabeth.barcia@my.liu.edu
_____

Address for Correspondence:__ Department of Psychology, LIU Post
720 Northern Blvd.
Brookville, NY 11548-1300
Office: Life Sciences 149-6
_____

PLEASE ATTACH A SUMMARY OF THE PROPOSED RESEARCH:
INCLUDE:

- Purpose of the study

- Statement indicating why study meets the guidelines for exempt review
- Subject population
- Brief description of procedures to be followed
- Brief description of risks and benefits to subjects involved in the study
- Recruitment Procedures
- Copies of consent forms, scripts, surveys, questionnaires, syllabi, and letters of cooperation should be appended.

As of September 1, 2004 all Long Island University personnel (including students and staff) involved in projects using human research subjects who have not completed the Long Island University workshop, "Education in the Protection of Human Research Subjects", are required to complete an online training program before beginning their research. To complete the training titled "Protecting Human Research Participants" go to ***http://phrp.nihtraining.com.*** *Once the training module has been completed, you will be prompted to print out a certificate of completion. A copy of this certificate must be submitted with your IRB application or your application will be returned. Please keep a copy of your certificate for your records as it must be attached to all future IRB applications as proof of training compliance.*

Please send one copy of the completed application to:
Inter-Departmental Mail: Dr. Lacey Sischo, Sponsored Research, University Center
Regular Mail: Dr. Lacey Sischo, IRB, LIU, Office of Sponsored Research,
700 Northern Blvd., Greenvale, NY 11548

Exemption Categories

Research activities that involve no risk to human subjects and are listed in one or more of the following categories may be reviewed by the IRB through the exempt procedure authorized by 45 CFR 46.101.

CHECK THE CATEGORY THAT ACCURATELY DESCRIBES YOUR RESEARCH ACTIVITY:

☐ (46.101.b.1) **Research conducted in established or commonly accepted educational settings, involving normal educational practices**, such as:

- Research on regular and special education instructions strategies;
- Research on the effectiveness of or the comparison among existing instructional techniques, curricula, or classroom management methods.

X (46.101.b.2) **Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior UNLESS:**

- The information obtained is recorded in such a manner that human subjects can be identified, either directly (e.g., name) or through identifiers linked to the subject (i.e., through ANY code used with the intent of being traced back to the subject)

AND

- Any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

☐ (46.101.b.3) **Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, that is not exempt as described above, IF:**

- The human subjects are elected or candidates for public office

OR

- Federal statute(s) require(s) without exception that the confidentiality of the personally identifiable information will be maintained throughout the research and thereafter (e.g., as in the case with a Certificate of Confidentiality).

☐ (46.101.b.4) **Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, IF:**

- These sources are publicly available

OR

- The information obtained is recorded in such a manner that human subjects cannot be identified, <u>either directly (e.g., name) or through identifiers linked to the subject (i.e., through ANY code used with the intent of being traced back to the subject)</u>

☐ (46.101.b.5) **Research and demonstration projects which are conducted by or subject to the approval of the Department of Health and Human Services, and which are designed to study, evaluate or otherwise examine:**

- Programs under the Social Security Act or other public benefit or service programs;
- Procedures for obtaining benefits or services under those programs;
- Possible changes in or alternatives to those programs or procedures;

Application Endorsements

Applications will not be reviewed without the appropriate endorsements.

Principal Investigator:

I certify that a) the information provided for this project is accurate; b) no other procedures will be used in this project; c) any modifications in this project will be submitted for approval prior to use; and d) study will not be started until final approval had been obtained from the IRB

_____ _____
Signature of Investigator Date

Conflict of Interest Statement:
Could the results of the study provide a potential gain to you, a member of your family, or any of the co-investigators that may give the appearance of a potential conflict of interest?

_x___NO
____YES, the potential conflicts of interest are described in a cover letter and disclosed on the consent form.

Faculty Supervisor (if required):
I certify that this project is under my direct supervision and that I am responsible for insuring that the investigator complies with all provisions of approval.

_____ _____
Signature of Faculty Sponsor Date

Department Chair:
My signature below certifies that I have reviewed this research protocol and that I attest to the scientific merit of this study and the competency of the investigator(s) to conduct the project.

_____ _____
Signature of Department Chair Date