

# **The influence of Instagram on exercise and eating behavior**

The Honors Program  
Senior Capstone Project Final Proposal  
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**ABSTRACT**

The use of social media, specifically Instagram, of 305 Bryant University students ages 18-28 was investigated through student completion of an online survey to examine how following exercise and food related Instagram accounts impacts behavior. Both male and females use Instagram fairly equally, though males are more responsive to food Instagram accounts than females, who have no significant difference in behavior. Both males and females who follow exercise Instagram accounts are significantly more active than those who do not follow exercise Instagram accounts. Given the recent explosive use of Instagram in the population, the implications for this study are enormous, especially for organizations that want to reach this segment to influence exercise and eating behavior.

## **INTRODUCTION**

“Weight gain and behavioral patterns during college may contribute to overweight and obesity in adulthood” (Racette, Deusinger, Strube, Highstein, & Deusinger, 2005). This is often due to the lack of exercise and proper eating habits that occur during this time. Given the popularity and widespread use of Instagram, it is possible that such a rich social media may influence exercise and eating behavior. Thus in an effort to explore the effectiveness of Instagram on exercise and eating behavior, a study was designed and conducted among students at Bryant University. The rationale for the study, the hypotheses, the study design, the analysis and results, and the implications of the findings are discussed in the sections that follow.

### Theoretical Background

Obesity is and has been an issue in the United States for some time now as over one-third of American adults are considered to be obese (CDC 2014). Obesity affects the lives of many people, both mentally and physically, and weight issues can very quickly evolve into other and worse health conditions [e.g. heart disease and diabetes] (Pagoto, Schneider, Jojic, DeBiasse, & Mann, 2013). By addressing obesity and taking control of weight management, health concerns such as heart disease and diabetes can be reduced and even eliminated.

Many college students today do not make healthy exercise or food choices when in their college environments as nearly seventy percent of students gain weight during their college years and also highlight the inactivity and unhealthy dietary behaviors that characterize many students in that time (Racette et al. 2005). Students have been shown to favor processed foods that cost less (Rao, Lazano & Taani, 2014). These foods, however, lack the necessary

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nutritional value for a healthy, balanced diet. “These health decisions by college students are further negatively impacted by stress and time constraints related to managing and balancing coursework, employment, relationships, and families, making eating healthy meals and being physically active problematic and low on the priority list” (Rao, Lozano & Taani, 2014).

People who eat more frequently are more likely to eat smaller portions and are more likely to manage their weight better. A study by Reuters Health (2015) found that adults who had multiple small meals each day tended to eat better and weight less than those who had fewer but larger meals. Additionally, a study by Oregon State University (2011) found that students skipped meals fairly frequently, which could account for some of the lack of fruits and vegetables, and ultimately important nutrients, that they need to feel fuller longer.

Some benefits of physical activity and a healthy diet, according to the United States Department of Health and Human Services Physical Activity Guidelines (2008) and the Harvard School of Public Health, include: improve chances of living longer and living healthier; protection from developing heart disease and stroke or its precursors, high blood pressure and undesirable blood lipid patterns; protection from developing certain cancers, including colon and breast cancer, and possibly lung and endometrial (uterine lining) cancer; prevent type 2 diabetes (what was once called adult-onset diabetes) and metabolic syndrome (a constellation of risk factors that increases the chances of developing heart disease and diabetes); prevent the insidious loss of bone known as osteoporosis; reduce the risk of falling and improvements in cognitive function among older adults; relieve symptoms of depression, anxiety and improves mood; prevent weight gain, promotion of weight loss (when combined

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with a lower-calorie diet), and weight maintenance after weight loss; improve heart-lung and muscle fitness; improve sleep.

While there have been attempts to address this problem, such as Michelle Obama's campaign to end obesity, the implementation of new nutrition labels, and the restructuring of the traditional food pyramid, there is yet to be a major improvement in healthy eating (Walton, 2014). It is important to address these problems now to ensure that these behaviors do not become habits that continue. Developing new health behaviors is a difficult undertaking that requires both mental and physical strength. It is clear, though, that patients are actively using online resources in addition to traditional healthcare information (Hamm, Chisholm, Shulhan, Milne, Scott, Given & Hartling, 2013). Given that technology has enhanced our lives in many ways, technological advancements may offer opportunities to address these health issues, including weight management.

#### Hypothesis Development

There is some evidence that social media has an important role in helping individuals adopt and maintain healthy behaviors. The US Centers for Disease Control and Prevention have identified a lack of encouragement, support, or companionship from family and friends as a major barrier to physical activity" (Nakhasi, Shen, Passarella, Appel & Andersen, 2014).

Online social networking sites are now being utilized to combat these barriers and provide support. "The social support and feelings of interconnectedness individuals experience with social media help explain the prolific growth of these platforms" (Chang, Chopra, Zhang & Woolford, 2013). Szu-Chi, Broniarczyk, Ying, and Beruchashvili (2015) noted that connecting with others and having interpersonal relationships when pursuing goals can

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motivate and inspire others to pursue the same goals. While “viewing profiles of successful or attractive people within a social network can lead to feelings of inadequacy and greater feelings of negative body image,” it can also lead to motivation (Turney-McGrievy & Tate, 2013).

Woolford, Esperanza Menchaca, Sami, and Blake (2013) examined the effectiveness of Facebook as a means to provide social support for a behavioral weight loss intervention amongst adolescents ages 13 to 17. While Woolford and colleagues recognized that a variety of factors are responsible for weight loss, their results showed that Facebook is an effective means of social support. “Since these [social media] sites are already an integrated part of many people’s lives, using them to provide social support during a behavioral weight loss intervention has the potential to increase use [of the social media site] as compared to accessing a separate discussion board or chat room (Turney-McGrievy & Tate, 2013).

A recent Global Social Media Impact Study based at the University College of London Department of Anthropology discovered (Campus Quad, 2014), however, that most college students are moving away from Facebook. Simpler social media sites, such as Instagram, which are focused more on pictures with less text, are growing in popularity (Campus Quad). Instagram is a picture and video sharing social networking service. Users can take photos and videos, apply filters to edit the pictures, use hashtags to help photographers find audiences and viewers find images of interest, and also share them across social networking platforms. Since its launch in October 2010, Instagram has grown to a community of over 200 million monthly active users with an average of 60 million photos being uploaded each day (Instagram). Apple named Instagram the “iPhone App of the Year” in 2011, and Instagram

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was acquired by Facebook in 2012 for \$1 billion. Instagram can be accessed from the web and through both iOS and Android platforms. The “Photos of You” feature allows users to be tagged in posts by others and linked back to their page. Direct messaging allows users to share photos and messages privately through the application. For this reason, following health and fitness related accounts on Instagram, which is personalized and interactive, may be helpful in motivating individuals to make healthy exercise and eating choices.

Turney-McGrievy and Tate (2013) called for more research into who benefits the most from participating in an online social network (e.g., Instagram) in response to health and fitness related content. Little attention has been paid, however, to the direct impact of Instagram on healthy exercise and eating behavior thus far. Because Instagram includes the interactivity and accessibility factors that have proven to be successful in weight management in the past, it is expected that individuals who follow health and fitness Instagram accounts will make healthier exercise and eating choices than those who do not follow health and fitness Instagram accounts. Specifically, it is hypothesized that **(H1)** individuals who follow exercise Instagram accounts will spend more time exercising than those who do not follow exercise Instagram accounts and **(H2)** individuals who follow food Instagram accounts will eat more frequently than those who do not follow food Instagram accounts.

## **STUDY**

A single factor design was used to test the hypotheses that following exercise (food) Instagram accounts will influence exercise (food behavior).



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#### Method

*Design, participants, and procedure.* Participants in the Bryant University Marketing Subject Pool completed a questionnaire in November 2014. Three hundred and five students participated, 54.8% of which were male, average age = 19.48 years, and age range was 18 to 28 years. The survey instrument was approved by the university Institutional Review Board (IRB). Participants responded to the questionnaire in a computer lab using the Qualtrics software program. The first part of the questionnaire asked about participants' involvement in social media. These questions were followed by questions about the frequency with which participants engaged in exercise and eating behaviors. The questionnaire concluded with questions about gender and age.

## **MEASURES**

#### Independent variables

*Exercise and food Instagram accounts.* Participants were first asked "Do you have an Instagram account?" They were then asked to indicate which types of Instagram accounts they follow by checking all that apply from the following list: friends, family, exercise, food, sports, celebrities, fashion, humor, other. Although participants were asked to identify a variety of accounts, the only accounts of interest to this study are the exercise and food accounts. Therefore no results pertaining to the other accounts are reported here.

#### Dependent variables

*Exercise behavior.* Participants were asked to indicate the number of hours they participate in physical activity each week. "1" indicated less than 1 hour a week, "2" indicated between 1

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and 3 hours a week, “3” indicated between 4 and 6 hours a week, “4” indicated between 7 and 9 hours a week, and “5” indicated over 10 hours a week of physical activity.

*Food.* Participants were asked to select a number (1 through 6) to indicate the number of times they eat each day.

## **RESULTS**

A one-way Analysis of Variance (ANOVA) was performed to test the hypothesis that individuals who follow exercise Instagram accounts will spend more time exercising than those who do not follow exercise Instagram accounts. The ANOVA with hours of exercise as the dependent variable, exercise Instagram account as the independent variable, and gender and age as covariates revealed that those who followed exercise Instagram accounts exercised significantly longer than those who did not follow an exercise Instagram account. ( $M_{\text{Instagram account}} = 3.48$ ,  $SD = .09$  vs.  $M_{\text{No Instagram account}} = 3.11$   $SD = .12$ ;  $F(1, 304) = 6.18$ ,  $p < .05$ ) (**Figure 1**), but that neither gender nor age impacted this relationship [gender:  $F(1, 304) = 1.22$ ,  $p = \text{ns}$ ; age:  $F(1, 304) = .002$ ,  $p = \text{ns}$ ].

A one-way Analysis of Variance (ANOVA) was performed to test the hypothesis that individuals who follow food Instagram accounts will spend less time eating than those who do not follow food Instagram accounts. The ANOVA with the frequency of eating each day (i.e. number of times) as the dependent variable, food Instagram account as the independent variable, and gender and age as covariates revealed that there were no differences between those who followed food Instagram accounts and those who did not follow an Instagram account. ( $M_{\text{Instagram account}} = 3.04$ ,  $SD = .07$  vs.  $M_{\text{No Instagram account}} = 2.97$   $SD = .10$ ;  $F(1, 304) =$

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.32,  $p = ns$ ) (**Figure 2**). There was however a main effect for age ( $F(1, 304) = 3.97, p < .05$ ) and a significant interaction effect of gender and Instagram account on the number of times an individual eats during the day (**Figure 3**).

Follow up analysis explored the linear relationship between age and eating frequency. The analysis using Pearson's Correlation Coefficient revealed that there is a significant negative linear relationship between age and frequency of eating ( $r(304) = -.12, p < .05$ ). As age increases, frequency of eating declines.

Further investigation of the effects of gender and following Instagram accounts revealed that males who follow Instagram food accounts eat less frequently than males who do not follow food Instagram accounts [ $M_{\text{Instagram account}} = 2.82, SD = .73$  vs.  $M_{\text{No Instagram account}} = 3.17, SD = .99; F(1, 165) = 4.23, p < .05$ ]. For females however, following food accounts had no impact on the number of times they ate [ $M_{\text{Instagram account}} = 3.16, SD = .97$  vs.  $M_{\text{No Instagram account}} = 2.90, SD = .88; F(1, 165) = 2.59, p = ns$ ] (**Figure 3**).

## **DISCUSSION**

The study aimed to analyze how exercise and diet could be influenced by the Instagram accounts that participants follow. It was expected that following an Instagram account would have a positive effect on exercise and eating behavior. The results of this study revealed that as expected, regardless of gender or age, people who follow exercise Instagram accounts spend more time being active than those who do not follow exercise Instagram accounts. This suggests that following Instagram accounts may help people to be physically active.

Conversely, there is no effect of following a food Instagram account on eating frequency nor

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was there a relationship between age and Instagram on eating frequency. However, there is a relationship between gender and food Instagram account with respect to eating as males who follow food related Instagram accounts eat less frequently. It was also established that as age increases, the frequency of eating decreases.

These results are consistent with previous research that has shown that other popular social media, including Facebook and Twitter, are helpful in weight loss. Thus, this study contributes to the literature by extending the previous work by suggesting that following Instagram accounts may have a positive effect on physical activity and a positive effect on eating behavior for males. This study also provides guidance to organizations who are committed to encouraging individuals to maintain healthy behavior. There are practical implications for organizations, [i.e. American Heart Association, American Diabetes Association, etc.] who can use Instagram as a medium for sharing information and seeing a result. Understanding that the exercise behavior of both males and females ages 18-28 years is responsive to media presented through Instagram, these organizations could encourage this behavior by targeting this audience and sending them messages through Instagram.

Additionally, because males are responsive to food Instagram accounts, organizations that promote diet and nutrition information may want to consider using food Instagram accounts specifically targeted at males. These organizations could connect with this segment of the population more closely through Instagram accounts encouraging healthy exercise and eating habits.

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Limitations and avenues for future research

Although this study adds to our understanding of the role that following an Instagram account may have on exercise and eating behavior, it has several limitations that can be improved upon in future research.

The results of the study are based on a convenience sample of students at one particular university and therefore cannot be generalized to other groups. The students in this sample eat in a dining hall, which could limit the number of times that they have access to meals and snacks, thus influencing their responses to the survey questions related to eating habits. Future studies that explore the impact of Instagram on young adults in other settings as well as on older adults would increase the generalizability of these findings.

Participants were asked “how many times a day do you eat?” It is possible however that frequency of eating is not necessarily an indication of healthy eating. This frequency measure does not address the quality or quantity of food eaten. Future studies should address the quality (i.e., how many fruits and vegetables) and quantity of food eaten.

**CONCLUSION**

The results of this study revealed that as expected, regardless of gender or age, people who follow exercise Instagram accounts spend more time being active than those who do not follow exercise Instagram accounts. However, those who followed food related Instagram accounts did not eat more or less than people who did not follow food related Instagram accounts, but males are more responsive to food Instagram accounts than females. These

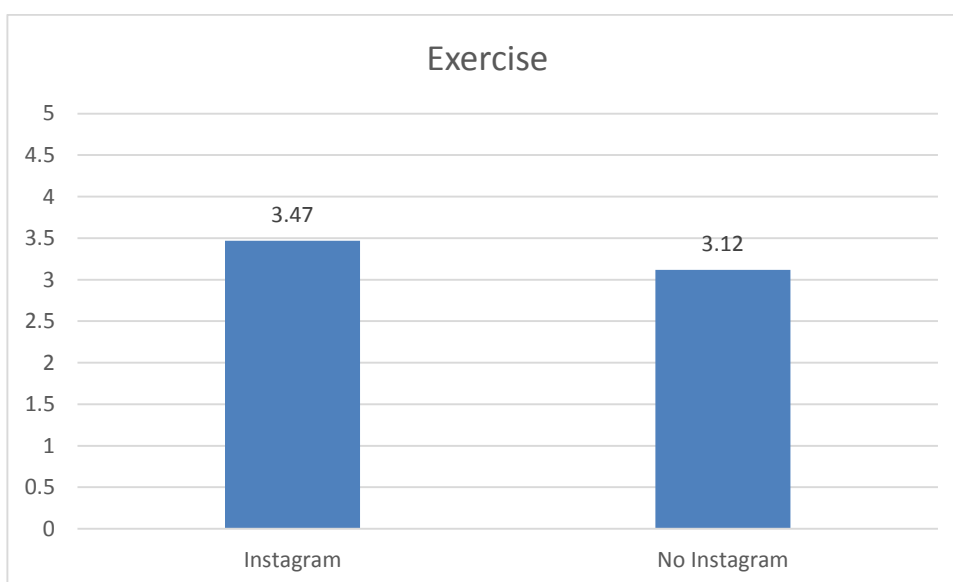
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results are consistent with previous research that has shown that other popular social media, including Facebook and Twitter, are helpful in weight loss, but there is still more research that can be done to determine how Instagram can affect eating behaviors.

**APPENDICES**

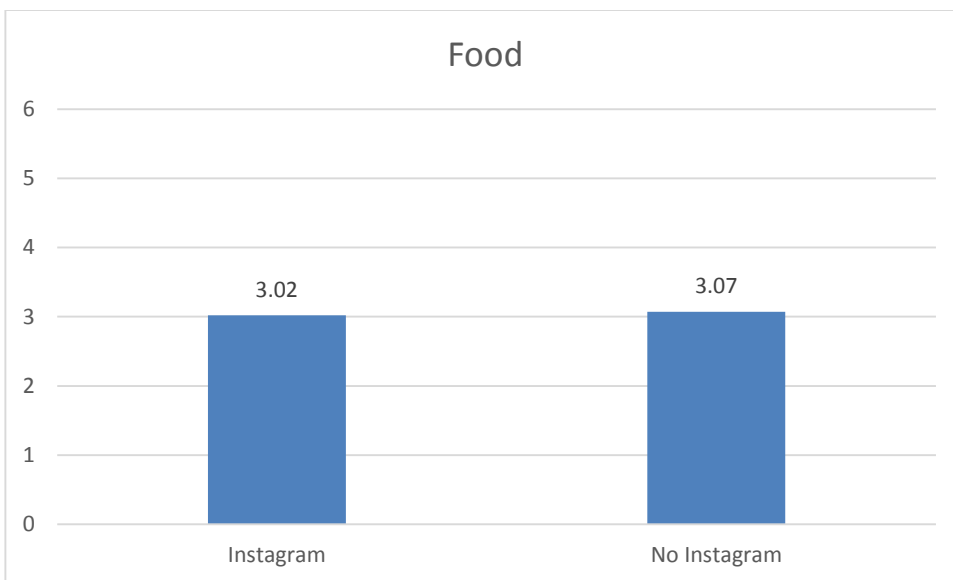
Appendix A – Figure 1



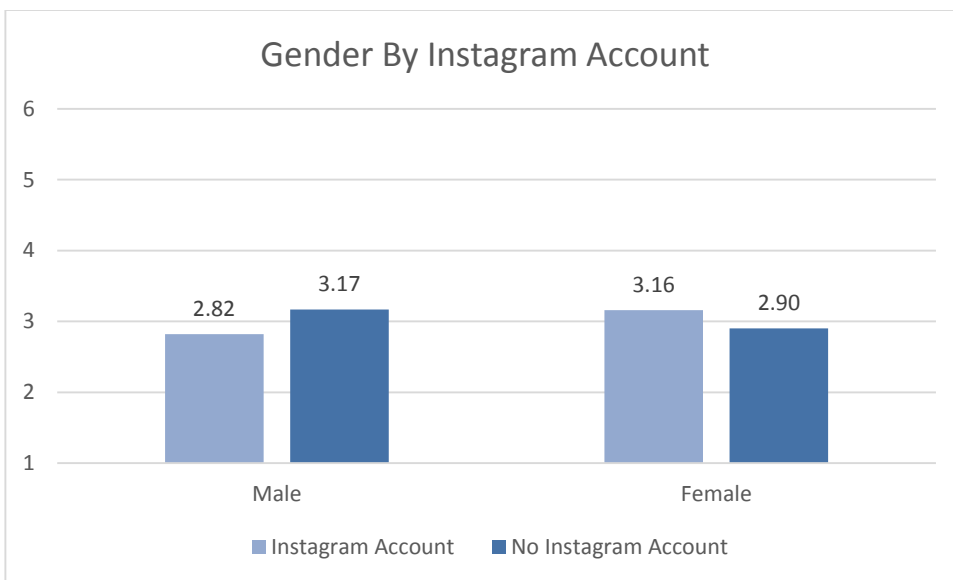
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Appendix B – Figure 2



Appendix C – Figure 3



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