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# The Benefits and Drawbacks of Physical Activity According to Social Media: a Content Analysis of Celebrities' Posts on Twitter and Instagram

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The benefits and drawbacks of physical activity according to social  
media: A content analysis of celebrities' posts on Twitter and Instagram

by

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### **Abstract**

According to the Centers for Disease Control and Prevention (CDC), the majority of the US population is at an unhealthy weight. Researchers have attributed the increase of people being overweight to a change in diet and a lack of exercise. Because physical activity is attributed to being a large component of maintaining a healthy weight, this paper analyzes how often celebrities' posts on Twitter and Instagram refer to physical activity. Social media was examined with regard to social cognitive theory which suggests that individuals can learn by observing others. A content analysis was conducted of posts about physical activity from the top 30 most followed celebrities on Twitter and Instagram. The study found that celebrities posted about physical activity more frequently on Instagram than Twitter. This may be attributed to Instagram being a more visual medium which allows celebrities to show off. Social cognitive theory suggests that individuals are more likely to mimic a behavior if they observe the behavior being rewarded, so the benefits and drawbacks the celebrities mentioned were also examined. The most common benefits of physical activity mentioned were: physical attractiveness, completing a goal, health, fun, spirituality and non-specific. Only two drawbacks were mentioned: time consumption and that physical activity can be tiring. Of the top 30 most followed celebrities on Twitter and Instagram male celebrities posted about physical activity and the benefit of physical attractiveness more often than females.

*Keywords:* physical activity, celebrities, Twitter, Instagram

### **Introduction**

Social media seems to be the new way to disperse information. Recently, the Let's Move campaign asked people to “#GimmeFive” in celebration of the campaign's fifth anniversary. They asked individuals to upload photos on social media sites showing five ways they are living healthy such as physical activity and made headlines with the amount of celebrities that joined in. Celebrities on social media can reach millions of people all over the world. This paper will look at how celebrities use social media outlets to reach their followers. I will examine whether and how physical activity, one of the most important components of health, is being promoted by some of the most influential people in the world through social media.

According to the CDC (2014), almost seventy percent of Americans are overweight. Individuals who are overweight are more likely to develop serious health conditions, such as diabetes and heart disease, which are two of the most common causes of preventable death in the United States (CDC, 2014; Finkelstein, Trogdon, Cohen, & Dietz, 2009). Researchers have found that changes in diet and exercise may be accountable for the rise in obesity-related health problems (Nsiah-Kumi, Kang, & Parker, 2012). The CDC (2011) recommends that adults perform physical activity around four hours per week to reduce these risks. The potential to reduce risk of disease may be a major motivator, but there are other benefits of physical activity that may also serve as motivation. These include the impact that body image can have on an individual's self-esteem or that physical activity can be fun (Bell & Dittmar, 2011). Aside from the two reasons previously stated, there are also cognitive benefits from physical activity (Morgan, 1989). Morgan (1989) found that participants that practiced any form of physical activity had better retention of information. Given the high percentage of overweight individuals in the US, there is either a knowledge deficit or a lack of motivation to change lifestyles to

include physical activity. For all of these reasons, physical activity and overall health should be encouraged. My research will look at what benefits and drawbacks about physical activity celebrities mention on social media outlets, Instagram and Twitter.

### **Literature Review**

#### *Health Interventions*

There have been many campaigns targeting obesity by encouraging physical activity. Two of the largest have been the CDC's campaign from the early 2000s, "VERB", and the "Let's Move" spearheaded by First Lady Michelle Obama in 2010. Both "VERB" and the "Let's Move" campaign employed strategies similar to Albert Bandura's social cognitive theory which states that people can learn through observation and not just personal experience (Bandura, 1965; Georgiadis, 2013). "VERB" tried to target pre-teens and teenagers by demonstrating types of physical activity and showing that the reward is to be "popular" or "cool" (Georgiadis, 2013). The "VERB" campaign is considered to have been very successful in encouraging adolescents to participate in physical activity (Krisberg, 2005). "Let's Move" uses public service announcements (PSAs) to reach people from all demographics in the US (Georgiadis, 2013). The PSAs provide information on the potential health risks of being overweight as well as demonstrate the implementation of healthy behaviors (Georgiadis, 2013).

Although many health campaigns focus on the health benefits of physical activity, there may be a greater influence when the message is not expected to be persuasive in nature (Brehm, 1989). According to the theory of psychological reactance if an individual feels like their freedom is being restricted or they are feeling coerced by a message they are more likely to do the opposite of what the message is telling them to do to "take back" their freedom (Brehm, 1989). The application of social cognitive theory can decrease the perception of coercion by

modeling the desired action or behavior instead of other methods of persuasion (Bandura, 1965).

Psychological reactance can also be reduced by the medium that the message is presented on.

The majority of the content celebrities post on social media platforms is not intended to get their audience to make lifestyle changes could lower psychological reactance when a message is meant to persuade. With social media celebrities are not confined to their professional roles and are able to be more personal, which may allow fans to feel more connected. This connection can provide a greater influence than one monitored through other media channels (Sun & Wu, 2012).

### *Social Media*

The term *social media* refers to an “internet-based application...that allow(s) the creation and exchange of user-generated content” (Jin & Phua, 2014, p.181). As social media’s influence continues to grow, it has become a popular way to communicate on a much larger scale (Geser, 2010; Remanadhan, 2013). As of March 2015 Twitter had over 302 million active users (users who are on their account at least once a month), and Instagram had 300 million active users as of December 2014 (Statista, 2015). Twitter is a social media platform that allows individuals and organizations to post thoughts, ideas or any information in ‘tweets’ which must be 140 characters or less (Thackeray, Burton, Giraud-Carrier, Rollins, & Draper, 2013). Instagram works in a similar way although posts are limited to photos or videos and their captions. Both Twitter and Instagram users have the option of using hashtags which are marked with the symbol ‘#.’ A hashtag is used to mark keywords or topics in a Tweet or Instagram post that allows users to search for all posts containing that hashtag.

Thackeray and colleagues (2013) found that by using Twitter, they were able to heighten awareness for breast cancer as over one million tweets were posted about the topic during breast cancer awareness month. They also found that celebrities who posted about the topic had more

influence as they were re-tweeted (shared) most often (Thackeray, et al., 2013). Sun and Wu (2012) also concluded that fans that developed a parasocial relationship were more likely to be influenced by the celebrity to whom they were attached. Twitter is a popular media outlet for celebrities and has been very influential; for this reason it will be one of the two outlets I analyze and explore. The second one will be Instagram which requires the user to post a photo. Images can be equally as powerful if not more so than words. Durkin and Paxton (2002) found that adolescent girls felt less satisfaction with their bodies immediately after they were exposed to photos of women with “ideal” bodies in the media. Currently young adults ages 18-29 make up the majority of Twitter and Instagram users (MarketCharts, 2014).

#### *Why Celebrities?*

Celebrities are arguably some of the most influential voices of mass media, as a celebrity is someone who is “known for being known” (Fraser & Brown, 2002, p. 184) and is created by the media and must maintain a certain image in the media. Not only does society watch their actions to assess acceptable behaviors, people will often feel connected to a certain celebrity (Gorin & Dubied, 2011; Fraser and Brown, 2002). Products, brands, and social campaigns often hire celebrities to help advertise due to their large influence on the public (Miller & Allen, 2012; Fraser & Brown, 2002). This is especially true for diet and exercise products with examples such as Jennifer Hudson for Weight Watchers or Olympic athletes for Subway to promote their diet.

Twitter and Instagram allow people to connect directly with the celebrities they identify with which allows the messages the celebrities post to be received in a more convincing way (Bell & Dittmar, 2011; Jin & Phua, 2014). People often choose celebrities who have similar lifestyles and will then be more trusting of brands or anything else the celebrity might suggest

(Blasius & Muhlichen, 2010). Jin and Phua (2014) found that celebrity endorsements were perceived as more trustworthy if the celebrity had a high amount of followers.

Bandura (1965) found that individuals were more likely to mimic behaviors when the observer saw the behavior being rewarded. When individuals identified with the models performing an activity they were more likely to mimic the action, especially when observing the model receiving positive reinforcement (Bandura, 1969; Stever, 2010). With social media, a greater number of followers could be seen as a reward and so the most followed individuals may have the most influence. Boon and Lomore (2001) studied social cognitive theory and the influence celebrities have on young adults. They found that nearly half of the participants had been inspired by their celebrity idols to start an activity or pastime and a majority reported that their idols had influenced their attitudes or behaviors (Boon & Lomore, 2001).

There are varying degrees to how influential a celebrity may be on the public (Fraser & Brown, 2002; Miller & Allen, 2012; Gorin & Dubied, 2011). Miller and Allen (2012) found that people are highly affected by celebrity brand endorsements, and the extent of its impact depends on the trust the viewer has for the celebrity. Similarly, Gorin and Dubied (2011) found that most people look to celebrity news to learn what is acceptable in society and will attempt to mimic those behaviors. In addition to learning from celebrities, many people develop one-sided psychological relationships to celebrities and regard those celebrities as their role models (Fraser & Brown, 2002; Sun & Wu, 2012). People with this feeling of connection often adopt their celebrity role model's behaviors (Fraser & Brown, 2002). On social media, people can choose which celebrities to follow and with this choice they identify to whom they feel or want to be connected (Valviakis, Symeonidis, & Mitkas, 2013). Young and colleagues (2013) found that individuals with body-image issues chose to develop parasocial relationships with celebrities that



they felt had bodies that could actually achieve and used them as inspiration. As a result this connection can be used to encourage certain behaviors.

### **Research Questions**

RQ1: How often do celebrities mention physical activity in social media posts?

RQ2: When celebrities post about physical activity, what benefits and drawbacks do they mention?

RQ3: a) Are women more likely than men to post about physical activity? and b) Are women more likely than men to refer to the benefit of physical attractiveness?

### **Methods**

This study analyzed celebrity posts about physical activities on social media. It looked at how often they were made and examined the content of the posts. The sample included the top 30 most followed people on Twitter and Instagram as of June 2014 (see Appendix A). This sample was chosen because these celebrities are some of the most influential in the world, as the most people have chosen to watch and listen to them. The lists differed and were pulled from third party sites (“Leading social media networks...,” 2015). Celebrities that posted in languages other than English were excluded as were celebrities that did not post during the time frame. Data was collected from June 1, 2014 to July 31, 2014.

Once the data from the collection period was coded to determine which posts contained references to physical activity, the posts that referred to physical activity were analyzed as to how physical activity was being presented. This included comments indicating activity or photos of physical activity. For Twitter, only the posts on “the feed” were analyzed which means that links to other sites were not included in the analysis. Photograph content was limited to those showing an activity; pictures that indicated physical activity such as a woman in a sports bra

were not included unless a comment involving physical activity was in the post. Exercise equipment was included as physical activity if the post also referred to the intent to perform physical activity.

The posts were evaluated for indications of physical activity using the definition of the World Health Organization (2014), which describes physical activity as “any bodily movement produced by skeletal muscles that requires energy expenditure” (paragraph 1). Posts were included if the celebrities were not using physical activity for alternative purposes, such as getting from one location to another or walking the red carpet. Promotional posts containing physical activity, for example music videos involving dancing, were only included if there was phrase encouraging followers to be active. Posts were analyzed as to how the activity was referred to textually, pictorially or both, and what physical activity was mentioned or shown in the post.

The second and third research questions examined the benefits and drawbacks mentioned about physical activity. Posts about physical activity were analyzed to determine if the celebrity was referring to the activity in a positive, negative, or neutral way. If the post was categorized as representing physical activity in a positive or negative way, the benefit or drawback mentioned was recorded. Posts that contained implicit messages, often those with pictures that did not have text accompanying them, were analyzed by the non-verbal cues, such as smiles or body language, to determine if the post indicated a benefit or drawback.

Six benefits were identified in the coding process: physical attractiveness, completing a goal, health, fun, spirituality and non-specific benefits. Physical attractiveness was measured by text or body language referring to using physical activity to improve body image. This could be a suggestive pose such as an arched back to draw attention to a slim waist, or text that implied that

if an individual would like to have a body similar to that of the celebrities, he or she should do the activity mentioned in the post. The benefits of completing a goal, health, and spirituality were all analyzed based only on explicit messages. For the benefit of completing a goal, celebrities had to include a caption that mentioned that they completed something that required effort. To be coded as mentioning the benefit of health, posts had to explicitly say that physical activity is healthy in a caption. Posts were categorized as referring to the benefit of 'fun' when users indicated how enjoyable physical activity could be either implicitly or explicitly. Implicit messages were determined by nonverbal language, such as smile to whether or not the celebrity was intending to refer to the benefit of fun. The benefit of spirituality was mentioned once and was coded as such based in an explicit mention of prayer as it indicates a spiritual state or beliefs. Benefits were classified as "non-specific" if the posts mentioned physical activity in a positive way but did not specify a benefit, for example a caption such as "great game" which could be referring to many benefits.

Only two drawbacks were coded from the sample's posts about physical activity: that it can be time consuming and that it can be tiring. Drawbacks could only be determined by explicit captions, because frowns and other seemingly negative expressions could be confused with expressions an individual uses when putting in effort. The drawback of time consuming was only mentioned once in which the celebrity indicated that they would rather be doing something else with their time. The drawback of physical activity being tiring often referred to the amount of effort it takes to exercise and the strain on the muscles.

### **Results**

The top most followed celebrities on Twitter and Instagram are actors, singers, athletes, executives, and reality television stars. See Appendix A for a full ranking. More professional

athletes and reality television stars were in the top 30 most followed on Instagram than on Twitter. As of June 2014, 17 (56.7%) of the top 30 most followed users on Twitter were female, and 13 (43.3%) were male. Of Instagram's 30 most followed celebrities 18 (60%) were female, and 12 (40%) were male. Over the two months that I collected my data, some celebrities did not post at all and in turn were not included in my final sample. Other celebrities posted up to 830 times, with an average of 173.2 times on Twitter and 97.5 times on Instagram over the two months. Overall, celebrities posted most often about their professional or personal activities. Many of the professional activities posted were promoting the celebrities' latest projects while personal posts had greater variation.

My first research question asked how often celebrities post about physical activity on Twitter and Instagram. Of the top 30 most followed celebrities on Twitter, 18 (60%) posted about physical activity at least once, while 23 (76.7%) of the celebrities on Instagram posted about physical activity at least once. Of the 5197 posts on Twitter,  $N = 85$  (1.6%) referred to physical activity while  $N = 147$  (4.7%) of the 3120 posts on Instagram indicated physical activity. Posts about physical activity varied. Katy Perry shared a photo of herself biking around New York, and Taylor Swift posted a photo of herself running into the ocean on Instagram. On Twitter Bruno Mars replying to a tweet asking about his body with "Hard work dedication and the will to be amazing! #fitness #gymlife #oompaloompa #ilovemozzarella." Refer to Appendix A to see which celebrities posted about physical activity and how often.

Research question 2 examined the benefits and drawbacks that celebrities mentioned about physical activity. By percentage alone, fewer benefits were referred to in posts about physical activity on Instagram ( $N = 41$ , 28%) than on Twitter ( $N = 37$ , 43.5%). However, overall benefits and drawbacks were mentioned more often on Instagram. Few drawbacks were

mentioned on Instagram  $N = 4$  (2.7%) and on Twitter ( $N = 1$ , 1.2%; See Figures 1 and 2 for a chart of benefits and drawbacks). The benefits that were mentioned most often were physical attractiveness, completing a goal, health, fun, and non-specific. Posts indicating drawbacks most often referred to how tiring it can be.

Of the 85 posts about physical activity on Twitter, there were no references to the benefit of physical attractiveness. However, it was mentioned in 4.1% ( $N = 6$ ) of the 147 posts on Instagram. The benefit of physical attractiveness on Instagram most often referred to the photo posted such as Venessa Hudgens' "The 8 mile hike paid off [winking face emoji] [heart eyes emoji] [heart emoji]" with a photo of her in a bikini arching her back which is body language often used to show off a small waist. The benefit of completing a goal was mentioned in 5.9% ( $N = 5$ ) of posts about physical activity on Twitter and, of the posts about physical activity on Instagram, 9.5% ( $N = 14$ ) mentioned this benefit. As goals are specific to each individual, posts coded as completing a goal benefit had the most variation. Justin Bieber referred to the benefit of completing a training such as "Once again we made it :)" referring to finishing a hike, while others referred to a broader goal such as reaching their goal of gaining muscle mass. Health benefits were mentioned in 4.7% ( $N = 4$ ) of posts on Twitter and 2% ( $N = 3$ ) of posts on Instagram. The benefit of health was often mentioned when the celebrity was actively promoting physical activity, such as Kevin Hart's "#healthiswealth." The benefit of enjoyment or having fun while being physically active was referred to in 12.9% ( $N = 11$ ) of Twitter posts and 10.9% ( $N = 16$ ) of Instagram posts. Beyoncé referred to the benefit of fun when she posted "Don't need no hateration holleratin' in this skater [heart eyes emoji] Fun plex [bee emoji]."

Figure 1.

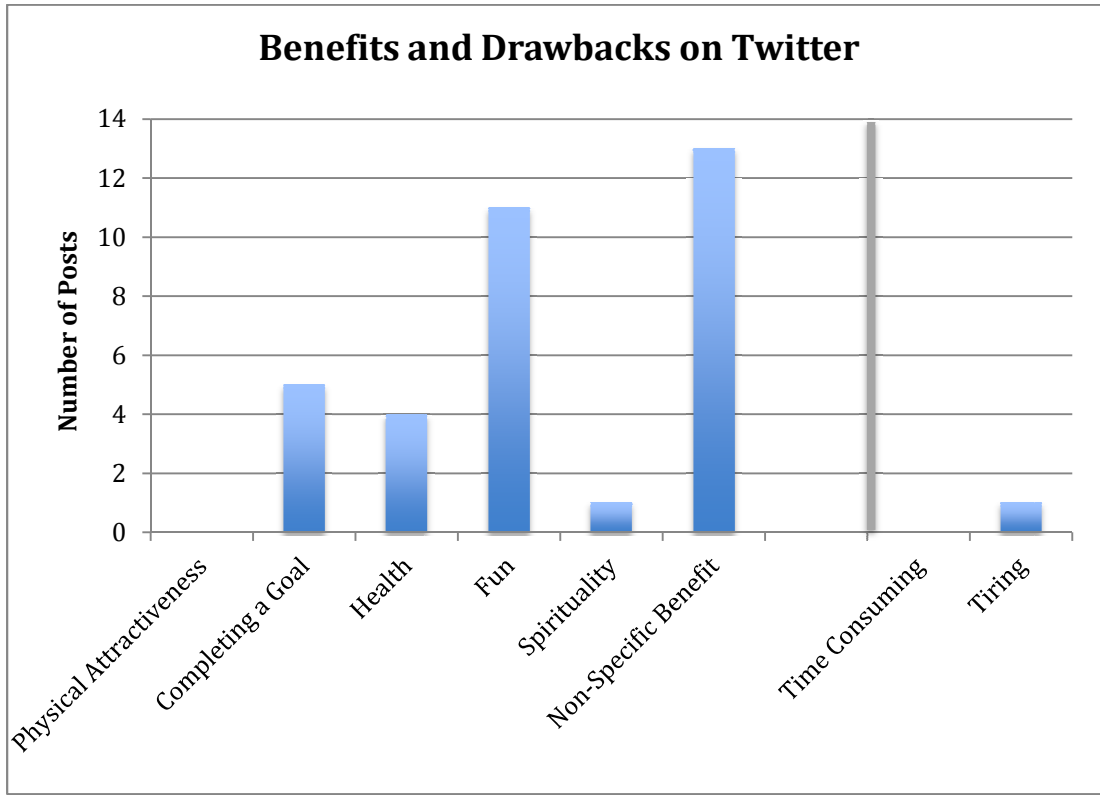
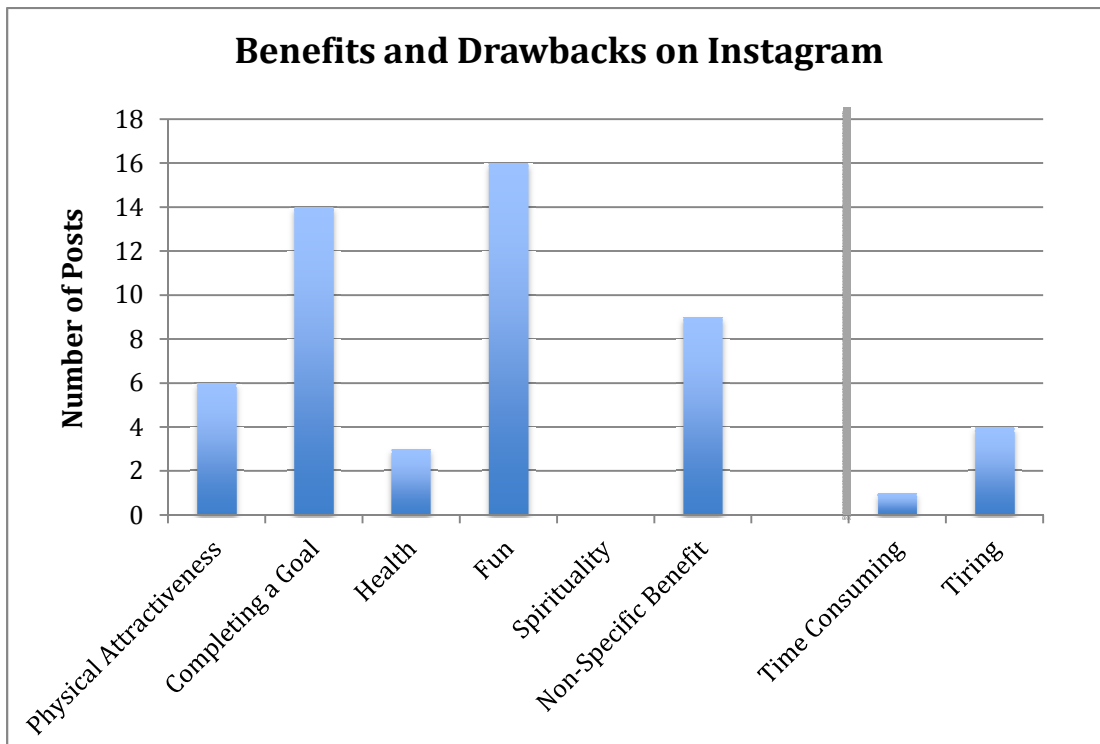


Figure 2.



The benefit of spirituality was mentioned once (1.18%,  $N = 1$ ) on Twitter by Oprah Winfrey, who posted “I like the idea of yoga as moving prayer.” Non-specified benefits were mentioned in 15.3% ( $N = 13$ ) of posts about physical activity on Twitter and mentioned in 6.1% ( $N = 9$ ) of posts about physical activity on Instagram. Posts that were categorized as “non-specific” were ones in which the celebrity could have meant a variety of benefits such as Niall Horan’s “Great Day of Golf ...” which could refer to enjoyment or completion of a goal.

None of the posts on Twitter referred to the drawback that physical activity can be time consuming, while  $N = 1$  (0.7%) post on Instagram mentioned the drawback of physical activity being time consuming. The one post referring to the time consumption of physical activity was on Justin Bieber’s Instagram “Work now play later” with a video of him learning a dance. Of the Twitter posts that referred to physical activity, 1.2% ( $N = 1$ ) referred to the drawback that physical activity can be tiring, and 2% ( $N = 3$ ) of posts on Instagram mentioned the drawback that physical activity can be tiring. LeBron James referred to the drawback that physical activity can be tiring when he posted a photo of himself sitting with the caption “Now refueling at [name of a juice bar].” Overall, physical activity and its benefits and drawbacks were mentioned more often on Instagram.

To answer the third research question comparing how often male and female celebrities post about physical activity, a statistical test found that males referred to physical activity more often than females on Instagram; however, the genders posted about physical activity almost equally on Twitter. On both Twitter and Instagram female celebrities posted overall more than males in the sample. However,  $t(28) = 1.137$ ,  $p = .265$  shows that male and female celebrities post about physical activity on Twitter with females posting about physical activity 1.1% (48 posts) and males posting 2% (37 posts). Females also posted more than males on Instagram;

however, male celebrities posted about physical activity (9.5%, 85 posts) more than females (3.9%, 62 posts) as supported by the statistical test,  $t(28) = -2.032, p < .05$ .

The second part of research question 3 asked which gender refers to the benefit of physical attractiveness more. Male celebrities mentioned the benefit of physical attractiveness in 4.7% ( $N = 4$ ) of posts about physical activity on Instagram. Female celebrities mentioned the benefit of physical attractiveness in 3.2% ( $N = 2$ ) of posts about physical activity on Instagram. The benefit of physical attractiveness was not mentioned in posts about physical activity on Twitter. A full comparison of benefits and drawbacks mentioned by gender are shown in figures 3 and 4.

*Figure 3.*

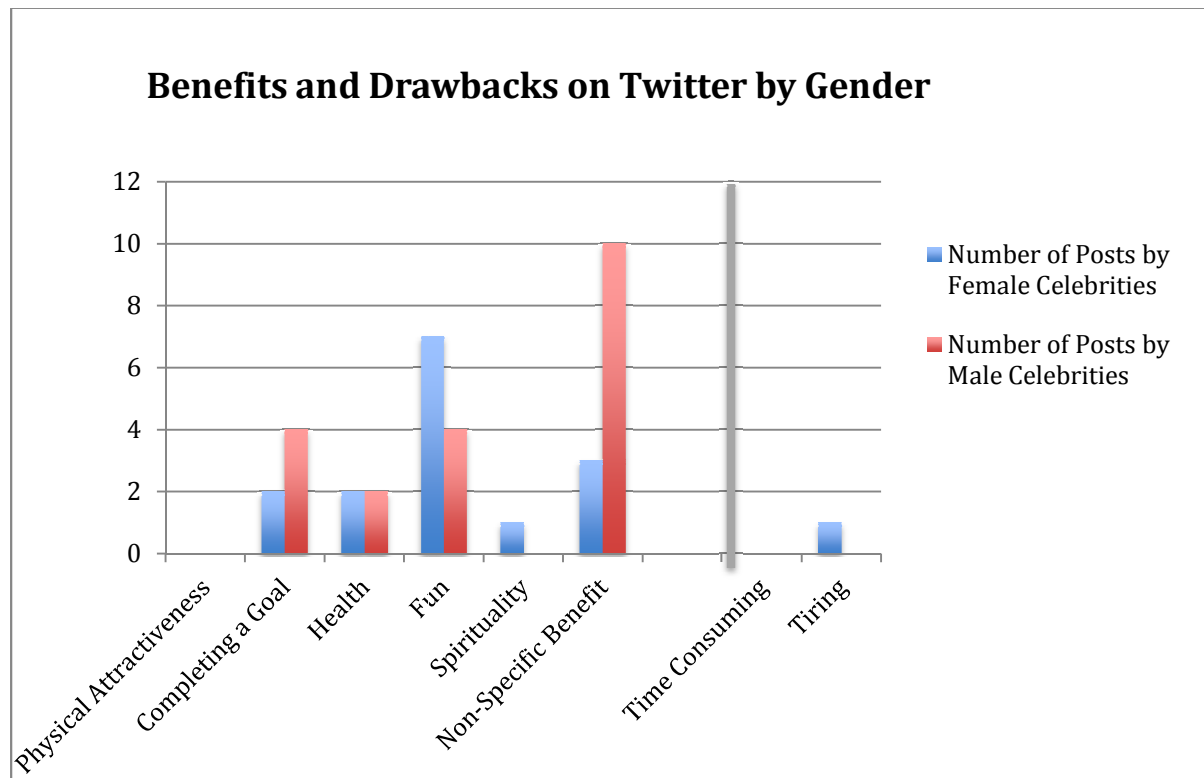
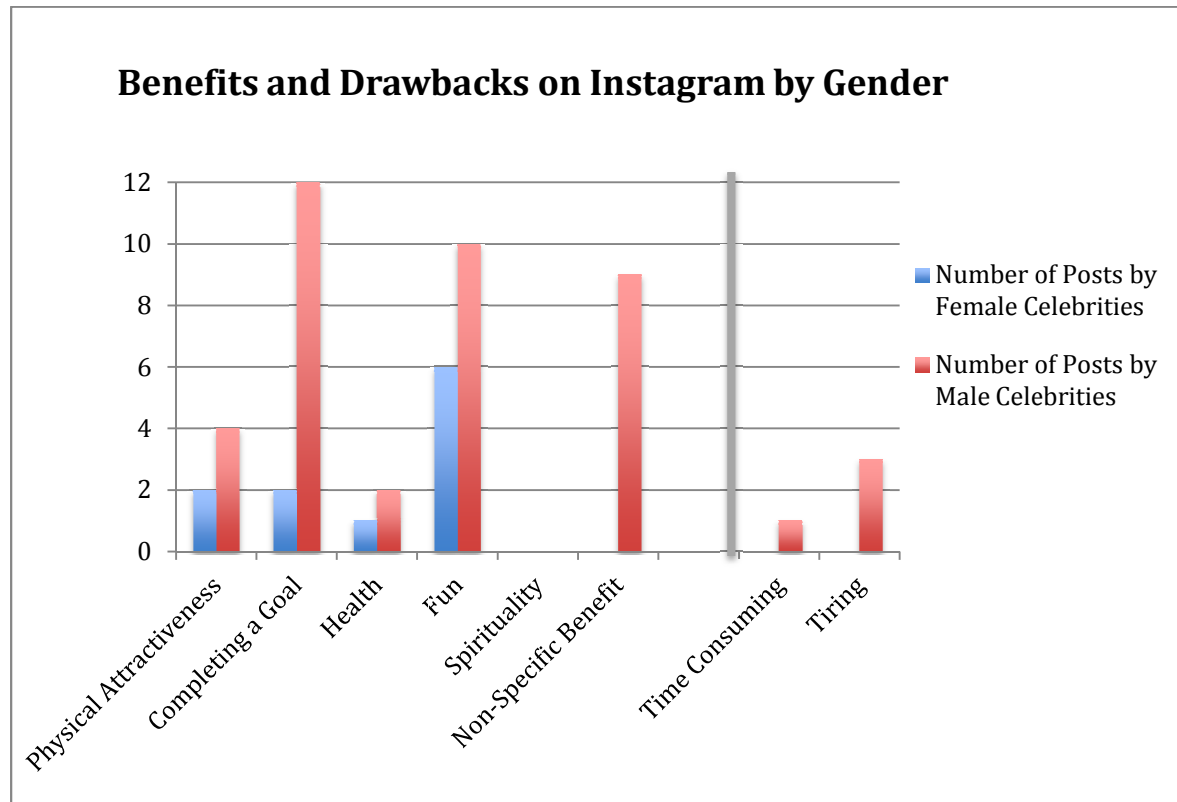




Figure 4.



### Discussion

My research found that overall celebrities did not post about physical activity very often. From June 1, 2014 to July 31, 2014 the top 30 most followed celebrities mentioned physical activity 1.6% ( $N = 85$ ) of posts on Twitter and 4.7% ( $N = 147$ ) on Instagram. Since the recommended amount of physical activity for individuals is around four hours a week the results of this study are lower than expected.

The results found that celebrities posted about physical activity more on Instagram (4.7%,  $N = 147$ ) than Twitter (1.6%,  $N = 85$ ). The most likely reason for this is that Instagram is more of a visual platform, which allows celebrities the chance to show off. This is also most likely the reason that the findings for RQ2 showed that benefits and drawbacks were mentioned more often

on Instagram, especially the benefit of physical attractiveness. The visual medium allows celebrities a chance to show off more than in written form on Twitter, and it offers visual proof. The visual proof may also be seen as more of a “reward” which could encourage followers to replicate the physical activity that is pictured or in a more general sense as described by the social cognitive theory. This visual proof could also heighten the celebrities’ credibility when encouraging physical activity.

The visual medium also allows for more international connections. In my sample there were more professional athletes in the top thirty most followed on Instagram than on Twitter. Many of these athletes had an international fan base and because Instagram focuses on pictures, fans are able to follow them despite language barriers. Athletes and many of the celebrities included in the sample are known for their visual entertainment, and that may be what their fans want and expect rather than reading tweets. Fans might follow celebrities that they hope will inspire them to be more physically active, such as athletes on Instagram, because they are able to see how to perform a certain exercise with the intent to copy it.

While the visual medium of Instagram offers many benefits as described above, it is important to note the potential downside. Durkin and Paxton (2012) found that girls were less satisfied with their bodies after being exposed to photos of women with “idea” bodies. Celebrities often have that “ideal” body to be in their line of work. This has the potential to lower the followers’ self-esteem if they are constantly looking at photos of celebrities’ bodies (Bell & Dittmar, 2011). When being exposed to the photos of physical activity they might not have enough self-efficacy to start exercising if they have low self-esteem (Bell & Dittmar, 2011). However, because social media allows individuals to choose which people they follow and

which to not, individuals might only follow celebrities that inspire them and don't harm their self-esteem.

While comparing the genders for the third research question, I found that men posted more than women about physical activity and the benefit of physical attractiveness on Instagram. Male and female celebrities posted about physical activity and the benefit of physical attractiveness almost equally on Twitter. These results may be due to the gender roles that are often assigned early on in the developmental process (Bem, 1983). Boys are expected to play sports and be more physical than girls, which may lead to men being more physically active than women later in life (Bem, 1983). Female celebrities might also post about the benefit of physical attractiveness less because they are afraid to be called shallow.

#### *Limitations and Future Research*

Future research should be done to improve upon this study. Future studies should collect data from a larger sample size and from a more randomized collection period for better control of variables. This will help determine on average how often celebrities post about physical activity and what benefits or drawbacks are mentioned. Research also should be conducted to measure how persuasive posts about physical activity on social media can be to encourage their audience to be more active. These studies should be conducted in a questionnaire format, rather than a content analysis of the comments or likes on social media, as many comments were observed to be fake which may sway the results. Research should also examine whether the celebrities' messages actually increase physical activity in their followers. Another consideration is that followers spend time on social media that could otherwise be used for physical activity. Overall, future research may want to focus on the influence of Instagram as it is a visual medium and because it is one of the fastest growing social media platforms.

### **Conclusion**

According to Thackeray and colleagues (2013) the influence that social media and celebrities have on the public is growing. This should be considered when designing interventions to increase physical activity among the US population. Physical activity is underrepresented on social media, but social cognitive theory states that individuals are more likely to imitate what they observe if it is associated with reward. The possibility exists for social media to promote a culture of physical activity by increasing representation of physical activity and its benefits. Future health interventions should continue to promote their messages on Twitter. However, Instagram should be utilized as well, as my research found that celebrities post more about physical activity on Instagram.

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## Appendix 1

**Table 1**

*List of celebrities on Twitter by number of followers with the number of total posts in collection period and number of posts about physical activity*

Rank	Celebrity	Gender	Number of Followers	Posts of PA	Total Posts	Percentage
1	Katy Perry	F	60,466,331	0	182	0.00%
2	Justin Bieber	M	57,127,633	12	419	2.86%
3	Taylor Swift	F	47,225,633	1	59	1.69%
4	Lady Gaga	F	42,225,264	4	257	1.56%
5	Britney Spears	F	39,668,825	0	24	0.00%
6	Rihanna	F	38,130,619	1	299	0.33%
7	Justin Timberlake	M	37,920,545	0	98	0.00%
8	Ellen DeGeneres	F	35,004,302	4	168	2.38%
9	Cristiano Ronaldo	M	31,476,881	3	129	2.33%
10	Jennifer Lopez	F	29,840,666	10	642	1.56%
11	Shakira	F	27,945,391	2	217	0.92%
12	Oprah Winfrey	F	25,900,456	3	108	2.78%
13	Kim Kardashian West	F	25,804,404	6	326	1.84%
14	Demi Lovato	F	25,557,580	8	338	2.37%
15	P!nk	F	25,132,749	0	20	0.00%
16	Selena Gomez	F	24,715,971	1	94	1.06%
17	Harry Styles	M	22,704,681	0	70	0.00%
18	Kaka	M	21,417,640	Posts not in English - Omitted		
19	Adele	F	21,265,977	0	1	0.00%
20	Ariana Grande	F	21,243,367	6	827	0.73%
21	Niall Horan	M	20,508,159	15	188	7.98%
22	Alicia Keys	F	20,508,159	0	42	0.00%
23	Bruno Mars	M	19,292,910	5	55	9.09%
24	Lil Wayne	M	19,292,483	0	30	0.00%
25	Marshall Mathers	M	18,871,688	0	8	0.00%
26	Miley Cyrus	F	18,824,217	2	271	0.74%
27	Bill Gates	M	18,596,296	0	60	0.00%
28	Liam Payne	M	18,546,992	0	64	0.00%
29	Pitbull	M	18,483,466	1	143	0.70%
30	Nicki Minaj	F	18,358,194	No posts farther back than July 21 - Omitted		
31	Drake	M	18,126,561	0	19	0.00%
32	Louis Tomlinson	M	17,954,365	1	39	2.56%
<b>Total</b>				<b>85</b>	<b>5197</b>	<b>1.64%</b>

**Notes:** Rank was determined by the number of followers each celebrity had in June 2014. The genders are represented with F for female and M for male. The last column titled "Percentage" is how often the celebrity posted about physical activity out of all of their posts.

**Table 2**

*List of celebrities on Instagram by number of followers with the number of total posts in collection period and number of posts about physical activity*

<b>Rank</b>	<b>Celebrity</b>	<b>Gender</b>	<b>Number of Followers</b>	<b>Posts of PA</b>	<b>Total Posts</b>	<b>Percentage</b>
1	Justin Bieber	M	23,125,907	18	147	12.24%
2	Kim Kardashian	F	22,259,761	6	145	4.14%
3	Beyonce	F	20,912,735	9	103	8.74%
4	Ariana Grande	F	20,035,966	3	89	3.37%
5	Selena Gomez	F	18,092,925	4	93	4.30%
6	Kendall Jenner	F	16,172,105	3	64	4.69%
7	Khloe Kardashian	F	15,087,177	7	147	4.76%
8	Kylie Jenner	F	14,656,750	0	117	0.00%
9	Taylor Swift	F	14,254,029	2	22	9.09%
10	Rihanna	F	13,738,781		0	
11	Miley Cyrus	F	13,587,672	5	425	1.18%
12	Neymar Jr.	M	12,752,938	Posts not in English - Omitted		
13	Kourtney Kardashian	F	12,371,062	4	80	5.00%
14	Nicki Minaj	F	11,340,474	0	271	0.00%
15	Katy Perry	F	10,064,281	1	51	1.96%
16	Cristiano Ronaldo	M	9,765,086	1	36	2.78%
17	Harry Styles	M	9,746,117	0	19	0.00%
18	Kevin Hart	M	9,635,213	20	174	11.49%
19	Demi Lovato	F	8,716,043	2	44	4.55%
20	Niall Horan	M	8,423,491	15	49	30.61%
21	Cara Delevigne	F	8,331,885		0	
22	Leo Messi	M	8,108,231	Posts not in English - Omitted		
23	LeBron James	M	7,755,644	7	35	20.00%
24	Jennifer Lopez	F	7,295,581	6	215	2.79%
25	Ellen DeGeneres	F	7,211,912	0	212	0.00%
26	Drake	M	6,982,427	0	101	0.00%
27	Justin Timberlake	M	6,397,566	0	17	0.00%
28	Chris Brown	M	6,232,864	0	3	0.00%
29	Scott Disick	M	6,088,865	3	46	6.52%
30	The Rock	M	5,988,106	19	70	27.14%
31	Vanessa Hudgens	F	5,801,317	8	62	12.90%
32	Iggy Azalea	F	5,793,369	1	80	1.25%
33	Tyga	M	5,572,796	2	66	3.03%
34	Ashley Benson	F	5,525,255	1	137	0.73%
<b>Total</b>				<b>147</b>	<b>3120</b>	<b>4.71%</b>

**Notes:** Rank was determined by the number of followers each celebrity had in June 2014. The genders are represented with F for female and M for male. The last column titled “Percentage” is how often the celebrity posted about physical activity out of all of their posts.