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Can We Reduce Social Comparison and Fear of Missing Out with Labels on Instagram?

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Abstract

The rapid rise in social media platforms has led to an increase of research surrounding its uses and effects. Thus far, results are heavily mixed with researchers finding both positive and negative effects. Activist campaigns, such as *Status of Mind*, have chosen to highlight negative outcomes such as increased social comparison and fear of missing out (FOMO). They have proposed platforms introduce a label to be placed on edited posts to help remind viewers they have been altered and are not an accurate depiction of reality. The current study examines whether labels are effective in reducing social comparison and FOMO in Instagram. Additionally, traits such as personality and perceived peer belonging and their connection to susceptibility to engage in social comparison and FOMO were assessed. College students (N = 46) viewed crafted Instagram posts both with and without edit labels and were asked to rate themselves on scales of social comparison and FOMO. Participants engagement in social comparison and FOMO were not significantly different across the two conditions indicating that the addition of the label had no effect. Likewise, perceived peer belonging and personality were not linked to greater social comparison or FOMO. Future studies should continue to explore this possibility with larger sample sizes and more specific measures to determine if labels are truly able to reduce social comparison and FOMO.

Can We Reduce Social Comparison and Fear of Missing Out with Labels on Instagram?

The twenty first century has seen the rise in social media platforms designed to connect people around the world. In the past decade, Instagram has slowly been on the rise to bypass popular social media site, Facebook (Lub, Trub, & Rosenthal, 2015; Marengo, Longobardi, Fabris, & Settanni, 2018). Instagram has gained popularity through its image sharing capabilities. While Facebook allows users to share hundreds of photos at once, Instagram allows a maximum of ten photos at a time, with many users only posting one or two. The site is designed to showcase the photo, with a caption at the bottom simply to serve as an antidote for the image. In addition, there are a variety of editing tools unique to Instagram that allow the user to polish and post their best photos for their friends and followers to view (Lub et al., 2015). Initially seen as another form of social media, Instagram has since changed the way users post photos. These changes have been particularly embraced by younger users. Users have discovered that more polished photos earn more likes. Likes are popularly perceived as affirmation of acceptance within the society (Dumas, Maxwell-Smith, Davis, & Giulietti, 2017). Therefore, users have become obsessed with posting the most perfect photos of themselves to acquire more likes and in return feel adequately accepted within their society.

With the purpose of Instagram to showcase perfected photos, there is concern that individuals are consumed in presenting perfection through their posts and creating expectations not based in reality for themselves and possibly others. As a result, an increase seen in social comparison and fear of missing out (FOMO) behaviors are being observed. Social comparison is the act of comparing oneself to others, while FOMO is the feeling that can accompany this act and cause a person to feel inadequate against those with whom they are comparing themselves. The nature of Instagram may be enhancing the desire to post only the most perfect images of

one's self, provoking concerns about the negative effects caused by viewing these crafted images (Dumas et al., 2017). Research examining both Facebook and Instagram indicate an increase in stress, social comparison, loneliness, and depression as time spent on these platforms increases (Lub et al., 2015). Other studies disagree, stating that increased time on Facebook and Instagram has resulted in increased social contact, social capital, and self-esteem (Lub et al., 2015), and the opportunity to edit photos before posting actually enhances a positive concept of self (Chae, 2017). To date, research is mixed and the impact of social media on mental and social wellbeing is still debated.

Even though the consequences of social media exposure are mixed, many activist groups are focused only on the negative consequences of social media use to get the public to reduce their use. Some campaigns, such as *Status of Mind*, have tried a different approach. While they advocate for reduced social media use, they also call for social media sites to make changes that will help reduce negative effects. One solution that has been proposed is the addition of warning labels on posts that have been edited. They believe that such a solution would help draw attention to the fact that the post was altered and is not an accurate portrayal of day to day life, while also having the benefit of being inexpensive and easy to implement. However, to date, no studies have been conducted to determine the effectiveness of such a label. The goal of this project is to begin this investigation by combining commonly cited negative effects of social media use, social comparison, peer acceptance, and FOMO which have all been studied independently to determine if adding a label to edited posts on Instagram would reduce these negative effects.

The History of Social Media: Facebook and Instagram

When Mark Zuckerburg first began Facebook in the early 2000s, he had a goal to connect the students of Harvard. As it expanded beyond the school grounds, the purpose of Facebook was to connect friends and family around the world so they could keep one another updated on their day-to-day lives. Facebook's primary method of sharing information was through written posts. Its development as a social media site can be described in three phases. Upon its first release, Facebook was a way to show the world "who are you?" Gradually, posts transitioned to showcase what you are doing and when. Most recently, Facebook has become a popular place to show the world where you are through countless videos and pictures to represent physical places, as well as long written posts that describe experiences and their effects on a person's life (Brugger, 2015). While Facebook initially exploded with young users, more recently it has seen a shift in demographics with users 18-24 dropping their Facebook use in favor of new platforms like Instagram or Snapchat. This age group is now the second largest on Facebook, following those aged 25-29 (Pew Research Center, 2018). Still seen as one of the largest platforms of social media with 2.3 billion monthly users worldwide, Facebook still has 80% of 18-24-year old's claiming to use an account, while only 71% of that age group claims to use Instagram (Pew Research Center, 2018). Newer social media platforms, such as Instagram are showing an increase in popularity among younger individuals indicating a platform use shift and not a decline in overall social media use.

One of these rising social media platforms among younger users is Instagram. Founded in 2010, this platform is not yet old enough to have an extensive scholarly history written. Instagram was developed as a visual communication platform. It has grown and changed over its short life, but the visual nature of the platform remains as the core purpose of its existence. In

addition to posting photos, users have a wide range of built in editing tools that help them polish and enhance their posts (Kishundat, 2018). While the site was quickly gaining popularity in the first few years of existence, it exploded when purchased by Facebook in 2012. Today the site boasts 500 million active daily users around the world. Under Facebook's ownership, features such as tagging and private messaging were added to the site (Nwazor, 2016). The visual nature of Instagram appears to be the key selling point. Considering that the picture or video is the centerpiece of the post, more time and effort is put into crafting the perfect image to portray the user's message. The visual nature is also appealing to the viewer, as they can simply absorb the images as they scroll through content.

It is likely that the popularity of this site by young people is due to three things. First, this is a relatively new form of social media. Young people are historically drawn to what is new and popular among their peers. Second, the built-in editing tools allow anyone to post high quality photos, not just celebrities with professional photographers. Higher quality photos accumulate more likes, rewarding the content creator with validation of social acceptance and encouraging future use. Finally, the visual nature of the platform requires minimal effort to view. Users can view and absorb the images quickly and move on to the next post. There are typically only a few images per post, keeping the site simple and clean (Nwazor, 2016). This is unlike Facebook, whose posts commonly extend for several paragraphs, hundreds of photos that can be posted at once, and overall more cluttered appearance that requires more engagement to fully absorb.

Social Comparison Theory

As individuals, we strive to belong to a group of similar others. When an individual views images of another individual, on any platform, there is comparison to determine similarities and the likelihood of acceptance. Social comparison theory explains that people

judge themselves based on these comparisons (Festinger, 1954). It is proposed that the visual

nature of social media makes it easy for individuals to quickly compare themselves with people

they know as well as complete strangers (Chae, 2017). Research indicates that increased social

comparison on social media is associated with lower self-esteem and body satisfaction (Choukas-

Bradley, Nesi, Widman, & Higgins, 2018; Clayton, Ridgway, & Hendrickse, 2017; Tiggemann,

Hayden, Brown, & Veldhuis, 2018; Yang & Robinson, 2018). Also, the amount a person

compares themselves to their friends also affects their self-esteem and the amount they edit their

photos and posts to try to attract more attention (Chae, 2017). Commonly, this attention is given

in the form of likes. The layout of social media that displays the number of likes a photo has

received also makes it easy for both the individual, their friends, and strangers to determine the

degree to which the content is accepted socially, thus continuing the cycle of social comparison

(Tiggemann, Hayden, Brown, & Veldhuis, 2018).

       With increased social media use, there are more opportunities for these effects to

manifest. In addition, as the number of strangers followed increases, so does the likelihood an

individual will view their own life as insufficient and unfair in comparison (Lub et al., 2015).

This finding is especially important when considering how many celebrities an individual

chooses to follow. By comparison, a person's life will fall short of the celebrity due to lack of

money, time to travel, access to personal trainers and cooks, etc. Yet this would not stop social

comparison from occurring, causing the individual's life to fall short by comparison.

       However, several characteristics have been found to affect the interaction between

Instagram use and social comparison. For example, those who have reported higher investment

in social comparison are more socially oriented (Yang & Robinson, 2018). Meaning that social

individuals crave consistent interactions with others and have found social media to be an

effective platform to achieve such interactions. Yet, they are also better equipped to handle the

extra internet use without it developing into an addiction because they also understand how to

effectively communicate in person (Blackwell, Leaman, Tramposch, Osborne, & Liss, 2017).

This breaks the cycle requiring increased social media to replace inadequate face to face

interactions but also leads to increased social comparison (Lub et al., 2015). There is also

evidence that viewing pictures of friends and family serves as a reminder of the real world and

how people live day to day. Therefore, it is proposed adding labels to edited posts would serve as

a reminder that the content is not an accurate depiction of reality, and social comparison would

decrease as a result.

The Fear of Missing Out

Related to the act of social comparison, there is the feeling an individual has missed out

on a connection or experience that another person has experienced. More time spent on social

media equates to more exposure to others' lives and more opportunities for individuals to

develop FOMO (Blackwell et al., 2017). FOMO is defined as a feeling that an individual is

missing out on activities with other people. These activities could be as simple as dinner with

friends or as extravagant as a tropical vacation. As many as 70% of adults ages 18-34 reported

partially or completely identifying with this concept (Alt, 2018). This feeling stems from a deep

desire to belong among similar others (Wegmann, Oberst, Stodt, & Brand, 2017), and is

characterized by irritability, anxiety, and feelings of inadequacy (Alt, 2018). Individuals

experiencing FOMO may view the members of such a group as better or more well liked, while

they are forgotten. Past studies have defined state versus trait FOMO. State FOMO is the degree

a person feels like they are missing out in the moment of viewing online social media content

(Gibbons & Buunk, 1999). In contrast, trait FOMO would be the predisposition an individual has

as determined by their personality to feel left out of situations. This predisposition could cause an individual to be more susceptible to feelings of FOMO in response to viewing social media, and possibly more responsive to the presence of a label.

While the trait of FOMO has only recently been defined by researchers, the number of studies on this topic are growing. One study found that higher levels of FOMO were related to higher measures of neuroticism (Gibbons & Buunk, 1999). Similarly, another study found that higher levels of FOMO related to more depressive symptoms reported. These individuals also reported turning to social media more to gratify the need to belong that they were not finding in their face-to-face interactions (Abel, Buff, & Brur, 2016; 15). Ostracism and low feelings of belonging among peers have also been linked to higher feelings of FOMO (Alt, 2018) which may also result in increased social media use. These findings suggest FOMO's is linked to increased social media use, which in turn would increase the negative consequences associated with that use. However, no studies have explored this proposed link. The use of FOMO in this study will begin this exploration by determining if an individual's feelings of FOMO can be reduced as predicted by adding the edited label to Instagram posts.

A Sense of Peer Belonging

Feelings of missing out and comparing oneself to others are rooted in the need for individuals to belong in a group. A sense of connection to others is needed to lay the groundwork for lasting relationships (Allen, Ryan, Gray, McInerney, & Waters, 2014). As children become adolescents and young adults, peer connections become more central as independence from family grows. Positive peer connectedness and belonging have effects on academics, psychosocial wellbeing, and identity development (Allen et al., 2014). Peers are also necessary for learning acceptable forms of social interaction. Peer groups create norms around accepted

social interaction that used within the group and with all outside interactions as well (Davis, 2012).

The rise of social media has expanded the way adolescents and young adults make and maintain peer relationships by providing a platform that allows the constant sharing of thoughts, interests, and activities. Social media sites, such as Instagram, have become a new method for sparking connections by allowing individuals to find and follow others. The public nature of social media accounts allows individuals to search for and find people who share similar interests, hobbies, or beliefs. Membership to groups can be quickly achieved, and from there, public postings on social media help broadcast this belonging to a wider audience (Davis, 2012). In addition to finding new connections, social media is a useful tool for maintaining friendships. Many sites, such as Facebook and Instagram, have built in direct messaging tools that allow friends to talk to one another regardless of their physical location. They commonly cite using social media to keep up with peers they are unable to see or talk to often (Davis, 2012). The ability to connect with others regardless of physical location is appealing to adolescents and young adults who are transitioning from living with parents to college and new jobs with new and broader social circles. This ability to cross distances and speak one on one or in large group chats in real time helps individuals maintain membership to groups and increase feelings of peer belonging.

Research has shown that peer connections and feelings of group belonging are important to individual development. Some have begun to explore how social media has changed the way connections are formed and maintained (Allen et al., 2014; Davis, 2012). A decreased sense of peer belonging has been linked to more social media use, as individuals search for the feeling of connection they are missing in their day-to-day interactions (Dumas et al., 2017). Additionally,

individuals who experienced less belonging among peers are more likely to engage in deceptive, like-seeking behaviors online such as editing social media posts to make them appear more desirable (Dumas et al., 2017). However, it is not necessarily the case that individuals with high feelings of belonging would use social media less frequently as a result of feeling connected to others. Instead, those with greater feelings of belonging are likely to use social media more to help them maintain their many relationships and satisfy their heightened desire for social interaction (Blackwell et al., 2017). Knowing that peer belonging can influence how much an individual view and engages with social media, this current study explores the link of perceived peer belonging with engagement in social comparison and FOMO.

Past Work on Warning Labels

Social comparison, FOMO, and feeling of belonging among peers have all been recognized by recent social media campaigns and past research as common effects related to increased social media use. While these behaviors existed long before the invention of social media, their connection with increased use has been seen by many as problematic. The proposed solution of labeling edited posts is also rooted in scientific data. Previous research on the effectiveness of warning labels has focused solely on fashion magazine media due to its availability and the common practice of photoshopping models' bodies presented in fashion print media. As the main consumers of such magazines, these studies also focused on effects in women specifically. Labels have been proposed as a probable solution to negating the effects of photoshop because they are easily and inexpensively implemented (Tiggemann, Slater, Bury, Hawkins, & Firth, 2013). The labels don't need to be large either, a small disclaimer in the bottom corner of the photo is all that is needed to be noticed (Frederick, Sandhu, Scott, & Akbari, 2016). Much of this work also focused on comparison specifically around body image.

High exposure to photoshopped models correlated with worse body image perceptions and a higher prevalence of eating disorders (Slater, Tiggemann, Firth, & Hawkins, 2012; Veldhuis, Konijn, & Seidell, 2012). Short exposure, such as brief interactions with the study stimuli, were enough to worsen women's opinions about themselves (Slater et al., 2012). With such short exposure causing such large effects on women, it remains to be seen how effective adding a label to these photos is at combating these effects.

While the exposure to fashion ads has produced similar effects found from exposure to social media, the effects of a label is still to be determined. Thus far, the results of adding labels to photos are mixed. Several studies have found that these labels had no effect on body image or body dissatisfaction (Ata, Thompson, & Small, 2013; Frederick et al., 2016; Tiggemann et al., 2013). In fact, adding this label brought greater attention to those areas of the model's body, and increased overall social comparison (Ata et al., 2013; Tiggemann et al., 2013). Following this pattern, studies that used more specific labels, such as those that indicated which body parts had been altered, saw greater increases in social comparison than studies using a general label (Tiggemann et al., 2013). Tiggemann et al. (2013) also found that participants scoring higher in social comparison before viewing the stimuli saw a larger increase in social comparison after, regardless of their label condition. This suggests individuals may have different predispositions to self-comparison with others. But not all studies found these results. There is evidence that adding a label to edited photos reminded the viewer of the false sense of reality being portrayed. All these studies help lay the groundwork for the current study. Factors such as body image, FOMO, and perceived peer belonging can all be types of social comparison. Therefore, while FOMO and peer belonging might not be observed behaviors in the studies that tested magazine ads, the concept remains the same. If adding a label can affect how the magazine viewer sees the

model's body, for better or for worse, then it could be extrapolated to explore other types of social comparison, namely FOMO, perceived peer belonging, and overall social comparison.

The Current Study

Past research has examined the use of social media and its effects across a variety of behavioral and social outcomes over the last ten years. Findings indicate that increased social media use on platforms such as Instagram can lead to a variety of both positive and negative effects on individuals. Campaigns have formed to address and combat negative effects of Instagram use, highlighting topics such as social comparison, FOMO, and perceived peer belonging. At their root, these effects are thought to be driven by an innate desire to find groups of similar others to belong with. Comparing oneself to these others helps ensure and maintain membership. When membership is not achieved, feelings of belonging decrease while feelings of missing out increase. In response to these behaviors, campaigns such as *Status of Mind* are calling for labels to be added to edited social media posts, such as on Instagram, to reduce these negative effects. To date, no such studies have been conducted. Thus, the main purpose of the current study was to examine whether adding such a label would reduce the degree of social comparison and FOMO related to Instagram posts among young adults.

The current study takes a broader approach than that in studies focusing on magazine advertisements. Specifically, the current study assesses social comparison more wholly defined (versus body-image and satisfaction) as well as including FOMO. This wider scope is anticipated to detect differences that may have been missed with a narrow focus on body-image and satisfaction as found in the studies examining magazine advertisements and their effects. This real time assessment was expected to analyze the label's influence on state social comparison and FOMO. Also, most studies focusing on fashion magazine only examined the effects on

female participants (Ata et al., 2013; Chae, 2017; Choukas-Bradley et al., 2018; Frederick et al., 2016; Slater et al., 2012; Tiggemann et al., 2013; Veldhuis et al., 2012). Unlike these past studies, men were not excluded from this study to better assess this comparison and gather more data on how men react to social media content with and without the presence of a label. Yet, it was hypothesized that the label would have a greater effect on women as they have been found in past studies to be more influenced by social media content (Fox & Vendemia, 2016).

By broadening the scope of social comparison beyond body image and satisfaction, the current study included men to better understand the effects of social media on social comparison and FOMO across all users. While past research suggests men may not be as affected by social media effects to begin with, this assumption has made them an understudied group in social media research. Due to the expanded definition of social comparison and addition of FOMO, the current study hypothesized that the presence of a label on Instagram would reduce these behaviors across all participants.

In addition, this current study also examines how predispositions of trait social comparison and FOMO, perceived peer belonging, and personality characteristics may affect how participants view and respond to social media. Individuals who struggle with enough in person interactions have been expected to turn to social media sites to fulfill these needs (Blackwell et al., 2017). This leads to more time spent on Instagram and more opportunities for negative effects to occur and grow. Thus, the presence of a label could help reduce this heavy usage to a greater degree and remind the viewer this false depiction of reality is not accurate. Therefore, the current study hypothesized that individuals with higher predispositions to these traits and behaviors would also see a greater improvement in the presence of a label.

Methods

Participants

A total of forty-six participants were recruited a small, Midwestern university. Flyers advertised the need for participants were posted at multiple locations across on-campus campus, and course instructors also were asked to forward information to students about participating in the study. Students participation was voluntary. Most participants were female (87%). Most participants also identified as white (80%), while the rest of the sample identified as latinx/Hispanic (11%), Asian (4%), black (2%), and mixed race (2%). Participants ranged in age from 18-44, with 94% falling into the traditional student ages of 18-22. While there were participants from all class levels at the university, most students were juniors (33%) or seniors (39%). Finally, when asked about Instagram use, 85% of participants reported having an account.

Procedure

The current cross-sectional study was approved by the University's IRB submission board and adhered to APA ethical guidelines. Participants completed the protocol as a group in a computer lab on campus. Participants were seated with four feet between them to ensure they could answer honestly without fear another participant was viewing responses.

After completion of the consent form and any questions addressed, participants completed their individual survey at their own pace. Basic demographic information was collected about participants sex, gender, ethnicity, age, current year in school, and Instagram use. Information also was gathered on personality, trait social comparison, trait FOMO, and perceived peer belonging. Participants then viewed the stimuli which consisted of a set of Instagram posts without the edited label and a set of Instagram posts with the edited label.

However, none of the photos were actually edited. Participants were randomly assigned to one of

two groups for which the presentation order of the photos were switched (label/no-label or

label/non-label). Participants viewed a video containing five crafted Instagram posts for 45

seconds each with a five second break in between for a total of four minutes and sixteen seconds

.After viewing the posts, participants answered questions about how they thought the subjects of

the post were feeling, how much they wanted to know about or wished to be doing what the

subject of the post were doing, and how they felt their own lives compared to those portrayed in

the post. All these questions were designed to measure state social comparison and FOMO.

Measures

       Demographics. Basic demographic information was collected to gather data on

participants' age, class level, gender, and ethnicity. Gender, age, and ethnicity were gathered

using an open response to allow participants to properly identify themselves without fear of

exclusion.

       Instagram Use. Participants were first asked if they owned an Instagram account.

Participants who reported not owning a personal Instagram account skipped the remainder of

questions asking about their use of the platform. Five questions were used to gather information

on Instagram use. The first three questions asked to indicate how often they checked, posted, and

interacted with content on the site on a 1 to 8 scale (1 = 2-3 times per day to 8 = never). Once

gathered, these results were reverse scored so 2-3 times per day = 7 and never = 0. The rest of

the questions asked participants to estimate how many people they followed and that followed

their account. They were also asked to indicate if they estimated these groups consisted of more

friends or strangers.

Personality. The Ten Item Personality Inventory (TIPI) was used to measure Big Five traits in participants (Gosling, Rentfrow, & Swann, 2003). Participants were given a list of ten different personality characteristics such as "critical, quarrelsome," "reserved, quiet," or "calm, emotionally stable." Using a 1-7 scale with 1= disagree strongly to 7= agree strongly, participants scored how well each of the characteristics applied to themselves. From that data, items 2, 4, 6, 8, and 10 were reverse scored (e.g. a score of 2 would be reverse scored to a score of 6). Each of the personality trait scores were calculated by averaging the two items that corresponded with that trait.

Trait Social Comparison. Eleven items were used to assess participant's tendency for social comparison (Schneider & Schupp, 2011). The items asked participants to determine how often they compared themselves with others' actions, thoughts, and opinions. All questions were answered on a 1-5 Likert scale with choices ranging from 1= strongly disagree to 5= strongly agree. Items 5 and 11 were then reverse scored and all eleven items were averaged together to create one trait social comparison score (α = .83).

FOMO. Ten items were asked to gather data on a participant's tendency for FOMO (Gibbons & Buunk, 1999). The items asked participants to determine how often they worry about what their friends are doing without them, or left them out on purpose, or made new jokes and memories they don't understand, etc. All questions were answered on a 1-5 Likert scale with choices ranging from 1= strongly disagree to 5= strongly agree. However, only items 1-4 and 9 were averaged together to create one trait FOMO score (α = .72) (Wegmann et al., 2017).

Perceived Peer Belonging. The six item Youth Relatedness scale was adapted to measure perceived peer belonging among participants (D'Eloia & Sibthorp, 2012). The series of statements included items like "my peers care about me" and "I feel secure in my relationships

with peers." Participants were asked how true each statement applied to them on a Likert scale ranging from 1= not true at all to 7= very true. All six items were averaged together to create a total perceived peer belonging score (α = .83).

   Stimuli. Ten images were collected from an online, copyright-free source. Diversity was a key concern in the selection to include a random mix of sex/gender, race, and activity. Images were selected that fit categories dictated by popular hashtags on Instagram. For example, images that depicted friend groups, travel, exercise, and relationships were selected to serve as stimuli. For the purpose of this study, a private Instagram account was created, and the stimuli photos were posted without captions to create the appearance of a real Instagram post. Each post was then screenshot. All ten of these images were duplicated and given a small "Edited" label in the lower right white space below the photo. These posts were crafted with the intention of simulating common types of posts participants would see in their daily Instagram feed. The label was intended to draw the viewer's attention to the image to decipher what techniques were used to alter the image while remaining simple to fit in with the clean appearance of the Instagram platform. All images were set on a 45 second timer in the survey. Participants viewed five stimuli photos for 45 seconds each and then completed the state social comparison and state FOMO questions using the VAS scale questions. Each statement was rated on a scale from 1-100. Participants could not see the value they were giving each statement, only it's placement on the slider. Researchers could later access this numerical data to determine how answers changed over the course of the survey. Groups were randomly assigned to view the non-label condition, then label condition, then non-label, then label or vice versa. The videos were placed into the survey at a size that took up about one quarter of the whole screen, but participants had the option to enlarge the video to fill the screen if they chose.

State Social Comparison and State FOMO. After exposure to five stimuli images, participants were asked to answer nine items assessing state social comparison and FOMO. Participants were asked how happy they thought subjects were, curiosity levels on what they were doing, if they wanted to be with stimuli subjects, how they thought their own lives compared, etc. Two items were expected to assess state social comparison. However, one item asked participants to rate their interest in the images presented while the other asked about comparing the participant's life to those presented in the stimuli. Thus, these items were not well related, and resulted in only one item, "How I see my life compared to these people is," used in analyses to assess state social comparison. Both scores from the condition stimuli were averaged together to create the non-label score and the same was done with the label condition. Three items, "I wish I was the one in the photo," "I feel like I have missed out on something," and "After viewing these photos I feel like I have missed out on something in my own life" were averaged together to create a state FOMO score for the non-label and label conditions ($\alpha = .81$).

Results

The descriptive statistics from this study can be found in Table 1. As a group, participants checked Instagram at least 2-3 times per day, interacted with content once a week, and posted new content less than once per month. Overall, the viewing behavior of the sample was moderate to high whereas the interacting behaviors considered, and the posting behaviors are moderately low. The average number of followers was 470, while participants reported following an average of 473 accounts. Both followers and following groups were reported to contain more friends than strangers, indicating participants used Instagram more for viewing and interacting with people they knew in real life. Participants reported a moderate tendency to compare themselves socially to others ($M = 3.55$, $SD = .59$) and identified low to moderate feelings of missing out in their

daily lives before viewing stimuli (M = 2.80, SD = .77). The temperament of the group as a

whole reported moderately high openness (M = 5.22, SD = .1.11) and conscientiousness (M =

5.74, SD = 1.11) scores while reporting moderate levels of extraversion (M = 4.17, SD = 1.84),

agreeableness (M = 4.64, SD = 1.26), and neuroticism (M = 4.21, SD = 1.26).

Correlational data revealed several significant associations (See Table 2). The frequency

of checking Instagram was found to be positively, moderately correlated with trait FOMO (r =

.330, n = 39, p = .040) and positively, strongly with peer belonging (r = .639, n = 39, p = .000).

Trait FOMO was also positively, moderately correlated with the frequency an individual

reported interacting with Instagram content (r = .322, n = 39, p = .046). Other correlations to

note include the moderate negative correlation between age of participants and the degree of trait

social comparison (r = -.415, n = 46, p = .004). It was expected that perceived peer belonging

would correlation with both trait social comparison and FOMO. While trait FOMO and trait

social comparison were moderately positively correlated, neither of these traits was correlated

with perceived peer belonging. As a result, no further analyses were conducted on the influence

of perceived peer belonging.

Before determining if the presence of a label affected social comparison and FOMO,

order of presentation effect was examined and there was no indication of a significant order

effect for the stimuli (See Table 3). Likewise, participant's ownership or not of an Instagram

account was examined and did not change how they viewed and responded to the stimuli in the

presence of the label (See Table 4). Finally, when the sample was divided by gender, there were

no significant statistical differences observed (Table 5).

To test the primary hypothesis that the addition of an "edited" label of the Instagram post

images would decrease social comparison and FOMO the correlations between non-labeled and

labeled conditions for social comparison and FOMO were calculated. Both social comparison

conditions were strongly and positively correlated ($r = .879$, $n = 45$, $p = .000$), as were the state

FOMO scores of both conditions ($r = .940$, $n = 45$, $p = .000$). Next, series of t-tests were

conducted to determine if the mean level difference between the non-labeled and labeled groups

for social comparison and non-labeled and labeled FOMO. For social comparison, there was not

a significant mean difference observed between the two groups ($M = 52.38$, $SD = 17.49$) and

label ($M = 54.18$, $SD = 15.12$) conditions; $t (44) = -1.56$, $p = .13$ ($d = -.23$). Next, the FOMO

mean differences between the non-labeled and labeled condition was examined and there was no

significant difference indicated between the non-label ($M = 22.75$, $SD = 21.29$) and label ($M = 23.32$, 21.97) condition; $t(44) = -.51$, $p = .62$ ($d = -.08$).

Discussion

The goal of the current project was to examine whether the presence of a label on edited

Instagram posts reduced the degree of social comparison and fear of missing out in a college-age

sample. Past social media research has found mixed results regarding the positive and negative

effects of social media use. While social media sites such as Instagram have been found to

increase social contact, self-esteem, and social capital they do so at the expense of increased

social comparison, loneliness, and depression (Lub et al., 2015). Stemming from this research,

many campaigns, such as *Status of Mind*, have called attention to the list of negative effects

caused by increased social media use. As a possible solution, they have proposed these platforms

introduce labels to be placed on edited posts (Royal Society for Public Health, 2018). The theory

is that these labels would draw the viewer's attention to the crafted aspect of the post and remind

the viewer they are not accurate representations of reality. However, labeling edited images and

their effectiveness has been examined for magazine advertisements in relation to body image and

body satisfaction. The magazine ad studies, while addressing social comparison, chose to focus on specific types of comparison surrounding body image and satisfaction. This specific focus may have overlooked more general forms of social comparison that could have been reduced with the presence of the label. These studies help lay the groundwork for the current study by showing that the presence of a label on a visual image can alter how the viewer perceives that image. To date, the use of labels to indicate the alteration of an image and its effectiveness in reducing the negative effects from exposure to these edited images has not been examined for social media posts. The use of social media in the current study takes this influence of a label and places it on a platform viewed by users at a high frequency. The high frequency use of social media means there is more opportunity for negative influences, but also a greater margin for improvement by adding a label.

In addition to exploring the effects of labels on social comparison and FOMO, analyses were conducted to explore how other traits may have influenced trait and state social comparison and FOMO. label. Past research exploring the connection between social media use and personality traits has found increased social media use to be associated with higher levels of extraversion (Blackwell et al., 2017). However, this connection was not found in the current study. This could be because this sample does not normally engage in high levels of social media use and leaves the sample without enough diversity to fully examine this connection. However, a novel finding in the current study was a significant positive correlation between extraversion and perceived peer belonging. However, it makes sense that individuals with a more outgoing personality would have stronger feelings of belonging among peers because their personality demands they achieve more social interaction, giving them more opportunities to meet and connect with groups. Past research had also discovered a correlation between higher reporting of

neuroticism and increased FOMO (Gibbons & Buunk, 1999). However, this connection was not found in the current study. These results can be explained by an overall low rating of neuroticism that left the sample without enough diversity to distinguish a link between neuroticism and FOMO. This lower ranking can also be explained by the age of the sample. There is a decrease in neuroticism as adolescents' transition into young adults. Therefore, this trend could indicate that this link between neuroticism and FOMO is only significant during adolescence.

Beyond personality, several other traits were explored for potential associations. FOMO research has suggested that these feelings increase when there is a lack of perceived peer belonging (Wegmann et al., 2017). It was hypothesized in this study that individuals would report increased social media use as a result of not achieving the level of connection they desired in person and with that increased use would be more susceptible to negative outcomes such as social comparison and FOMO. The results of the current study did not find any evidence that FOMO and peer belonging were connected, nor was peer belonging found to correlate with social comparison. This finding could be due to the lack of variability of the sample, as participants did not report a wide range of peer belonging scores, or imperfect measures that missed nuanced effects.

In the current study, I hypothesized that addressing social comparison as a whole would help encompass all of comparison viewers engage in when viewing social media. The presence of a label was not found to reduce state social comparison. This finding is in line with the majority of the magazine ad studies. While results are mixed, more studies found the presence of a label was not effective at reducing negative outcomes (Ata et al., 2013; Frederick et al., 2016; Tiggemann et al., 2013). It could be that a label alone is not enough to reduce an individual's social comparison. Another explanation for the lack of results in both the current study and past

magazine ads is that individuals are not invested in the stimuli they are presented with and a

larger influence would be found when a label was placed on posts of friends and family. In this

scenario the viewer would have a personal connection to the subjects, and it might be a more

jarring moment to see the label and realize what they were viewing was not an accurate depiction

of reality. The lack of significant differences between the non-label and label conditions also

suggests the presence of the label did not increase social comparison, as has been found in some

magazine ad studies (Ata et al., 2013; Tiggemann et al., 2013). There are a few notable

differences with the current study and past research such as a small sample size or that a poor

measure design resulted in only one usable question to assess social comparison as a whole

instead of the two that were planned. Both could help explain the differing results.

In addition to social comparison, this study explored how the presence of a label would

reduce feelings of FOMO. Research on the concept of FOMO has found it linked with increased

social media use as individuals strive to find belonging in a group (Blackwell et al., 2017;

Wegmann et al., 2017). FOMO can also be seen as a product of social comparison that when one

has a tendency to compare themselves to others, they also open themselves to feelings of falling

short or missing out. Correlation results supported this connection, finding significance between

state social comparison, with or without the presence of a label, and trait FOMO as well as

between trait social comparison and trait FOMO. This connection is not addressed in past

research. Instead, FOMO was expected to correlate with feelings of peer belonging (Wegmann et

al., 2017). However, this connection was not supported with the current data. This could be

explained easiest by the small sample size and the understanding that more participants would

bring this connection to significance. Also, a moderate correlation was found between state and

trait FOMO scores. This correlation is logical in that a person with a higher predisposition to feel

left out would result in them scoring even higher after viewing stimuli they perceived as desirable. In addition to these findings, the presence of a label did not significantly alter feelings of FOMO. No past studies have looked at the influence of labels on FOMO, but because there is evidence FOMO and social comparison are linked, these results can also be compared to past magazine ad studies. Doing so shows these findings to be in line with many magazine ad studies. As with social comparison, results of both the current and past studies can be explained by sample size, insufficient measuring tactics, lack of investment with stimuli subjects, or design and portrayal of labels.

The most important of the limitations in this study is the small sample size. In addition, there was little diversity with many participants identified as white women. With larger sample sizes, smaller effects of labels may be discovered in the future. Even though there were under ten male participants, a quick analysis revealed that statistical significance did not appear when the data was split by gender as indicated in the hypotheses. Larger pools of both genders may help reveal gender-based differences of the effects of a label.

Another limitation is that both conditions were shown close to one another, possibly limiting the detectable effects of the labels. Participants were shown both conditions to try to combat the small sample size. However, as a result, participants may have noticed none of the stimuli images were edited, reducing the effect of the label. None of the posts were actually edited, to test solely the effectiveness of the label's presence. Future studies with larger sample sizes should separate the two conditions completely to better analyze labels' effectiveness. They should also add uniform edits to the label condition to see if it enhances the effect of a label.

As for the stimuli themselves, they were crafted from online stock images, which also presented challenges. This was done intentionally to try to simulate Instagram content

participants might see from their friends on their own feeds daily. A quick analysis revealed that

participants did not find the content of the images to be very interesting, affecting their

comparison and FOMO and ultimately their scores. The video presentation of these stimuli was

to control the viewing time of each image. Yet, there was no way to ensure that all participants

viewed the stimuli for the correct amount of time. As many as one third of participants were

predicted to have viewed stimuli for less than the defined time, possibly altering their responses.

Future research should find a way to craft more interesting stimuli, either through actual

celebrity content or more accurate representations of posts participants see on their personal

Instagram accounts.

Finally, the type of label used is a limitation that should be adjusted in future studies. The

label included a small pencil image with the word "Edited" in the lower part of the posting space.

This label was created to be simple to fit in with the overall simple look of the platform.

However, it leaves the viewer to decide for themselves what exactly has been edited. It could be

that the image had been altered, or changed, or that the caption had been altered. Future studies

should experiment with different types of labels intended the viewer to pay attention to different

parts of the post to see which component of the post is in most need of a label and where the

label is most effective. Once again, the exploratory nature of this study leaves room for many

limitations, but also paves the way for future studies. The effectiveness of a label on social media

should not be assessed based on the results of this study alone. Future research may be able to

uncover benefits so such a change on social media platforms.

Conclusion

During its brief existence, social media has already risen to become a centralized part of

daily life, bringing with it a series of consequences that are just beginning to be understood.

Many of these outcomes have been defined as negative and in need of correcting. Two of these identified outcomes are social comparison and FOMO. Activists such as the writers of *Status of Mind* have called for labels to be added to social media posts such as those found on Instagram to help reduce the acts of social comparison and feelings of FOMO. The purpose of this study was to begin exploring the possible effects of adding a label to edited social media post such as those found on Instagram. While the results of this study did not find support for the effectiveness of labels in reducing social comparison and FOMO in relation to edited Instagram posts, it does spur more questions for future research to analyze. Social media is a large and rapidly changing part of daily life and that has altered how we interact with others both on and offline. While there are several positive effects from these platforms, there are many negative consequences that need to be addressed. Future work focusing on optimizing positive outcomes and reducing negative ones will help social media continue to develop as an effective communication tool.

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Table 1

Means, standard deviations, and ranges for sample.

	Total sample (N = 46)		
	Mean	Standard Deviation	Scale
Age	21.09	4.09	18-44
Openness	5.20	1.11	1-7
Extraversion	4.17	1.84	1-7
Agreeableness	4.64	1.26	1-7
Conscientiousness	5.74	1.11	1-7
Neuroticism	4.21	1.26	1-7
Trait Social Comparison	3.55	0.59	1-5
Trait FOMO	2.80	0.77	1-5
Perceived Peer Belonging	5.68	0.73	1-7
State Social Comparison: Non-Label	52.38	17.49	0-100
State Social Comparison: Labels	53.55	15.52	0-100
State FOMO: Non-Label	22.75	21.29	0-100
State FOMO: Labels	23.32	21.97	0-100

Note. Descriptive statistics are listed for each of the variables used in this study.

Table 2

Correlations between demographic, personality, social media, parent, and peer scores.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 Age	-														
2 Check Instagram	-.066	-													
3 Post Instagram	-.074	.237	-												
4 Interact Instagram	-.014	**.556**	**.342**	-											
5 Openness	.042	-.048	.226	.005	-										
6 Extraversion	.112	.118	.188	.135	**.442**	-									
7 Agreeableness	.152	**.374**	.115	.059	**..057**	-.214	-								
8 Conscientiousness	.000	-.035	-.118	.011	-.114	-.097	-.238	-							
9 Neuroticism	-.159	**-.338**	-.300	**-.380**	-.234	-.013	**-.065**	.058	-						
10 Trait Social Comparison	**-.415**	-.083	-.300	-.270	.104	.144	-.062	-.137	-.218	-					
11 Trait FOMO	-.103	**.330**	.078	**.322**	-.026	-.048	.241	-.147	-.196	**.596**	-				
12 Peer Belonging	-.173	**.639**	.307	.281	.167	**.318**	.216	-.141	-.195	.260	.276	-			
13 Social Comp: Non-Label	.188	**-3.73**	-.133	-.280	.080	.139	-.247	.144	.252	-.259	**-.349**	**-.114**	-		
14 Social Comp: Labels	.178	**-.452**	-.148	-.201	.149	.225	**-.379**	.056	.288	-.193	**-.344**	-.135	**.879**	-	
15 FOMO: Non-Label	-.177	.207	.286	**.340**	.109	.107	.050	.039	**-.319**	**.627**	**.539**	.147	**-.447**	**-.455**	-
16 FOMO: Label	-.151	.180	.251	.313	**.093**	.053	.093	-.097	-.283	**.569**	**.499**	.106	**-.399**	**-.418**	**.940**

Note. Correlational data is listed for all variables used in the study. All correlations with a significant of *p* < .05 or stronger are listed in bold.

Table 3

Paired Sample t-tests showing no order effects.

	Social Comparison: Non-Label		Social Comparison: Label			FOMO: Non-Label		FOMO: Label		
	M	SD	M	SD	t-test	M	SD	M	SD	t-test
Viewed Non-Label 1st	47.86	16.53	51.75	15.25	-2.60	31.04	21.62	32.95	21.93	-1.16
Viewed Label 1st	56.70	17.65	56.50	14.93	0.12	14.10	17.50	13.26	17.31	0.55

Note. Results of paired sample *t*-tests that show no order effects. All results with a significant of $p < .05$ or stronger are listed in bold.

Table 4

Paired Sample t-tests showing no influence of owning an Instagram account.

	Social Comparison: Non-Label		Social Comparison: Label			FOMO: Non-Label		FOMO: Label		
	M	SD	M	SD	t-test	M	SD	M	SD	t-test
Has Instagram Account	52.71	17.62	54.61	15.16	-1.48	23.44	21.81	24.70	22.49	-1.04
Doesn't have Instagram Account	50.57	18.02	51.86	15.78	-0.46	18.31	18.60	14.36	17.08	1.69

Note. Results of paired sample t-tests that show no influence by individuals owning a personal Instagram account. All results with a significant of $p < .05$ or stronger are listed in bold.

Table 5

Paired Sample t-tests showing no difference in results based on gender.

	Social Comparison: Non-Label		Social Comparison: Label			FOMO: Non-Label		FOMO: Label		
	M	SD	M	SD	*t*-test	M	SD	M	SD	*t*-test
Male	58.08	27.89	60.00	27.28	-2.01	8.25	13.63	9.67	15.24	-.76
Female	53.40	14.57	51.38	13.91	1.52	24.98	21.49	25.42	22.23	-.35

Note. Results of paired sample *t*-tests that show no difference in results once Reponses were sorted by gender. All results with a significant of *p* < .05 or stronger are listed in bold.