The Role of Reappraisal on Emotional Outcomes Following Instagram Use

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THESIS

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"My son has a PhD!"

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SUMMARY

This mixed methods study examined the effectiveness of a novel video manipulation using reappraisal as an emotion regulation strategy to improve the emotional experiences of Instagram users. In the quantitative section, three hypotheses were proposed: (1) Mood will improve more from pretest to posttest for the reappraisal participants compared to control participants. (2) Self-esteem scores will increase more from pretest to posttest for the reappraisal participants compared to control participants. (3) Loneliness score will decrease more from pretest to posttest for the reappraisal participants compared to control participants. In the qualitative section, semi-structured interviews were conducted with participants after their Instagram use to gain a deeper understanding of their emotional experiences.

Two hundred forty-seven participants were recruited into this two-semester study (Fall 2020, Spring 2021). Participants in the treatment condition watched a video normalizing emotional experiences on Instagram, while control participants watched a video about the history of Instagram. None of the hypotheses were supported. For the variable of self-esteem, participants scored higher on self-esteem at posttest compared to pretest. The qualitative findings provided rich context explaining participants' emotional experiences. Using transcendental phenomenology (Moustakas, 1994), seven themes were identified after synthesizing qualitative data from 50 participants. These themes were positive emotion, negative emotion, social comparison, self-esteem, reappraisal, awareness of highlight reel, and attention to likes, comments, and followers. Implications from the qualitative findings include identifying specific content that improved or worsened participants' emotions and how future researchers can target new ways to improve participants' experiences.

1. INTRODUCTION

A large amount of research shows that social networking sites are generally associated with negative psychological effects on users (Appel et al., 2015; Beyens et al., 2016; Chou & Edge, 2012; Hayes et al., 2015; Kross et al., 2013; Lup et al., 2015; Song et al., 2014; Steers et al., 2014; Utz et al., 2015; Yang, 2016). However, most of the research on social networking sites has largely focused on Facebook with lesser attention to other platforms (e.g., Instagram, Snapchat, and Twitter). Interestingly, a survey of almost 1,500 teenagers and young adults in the UK showed that Instagram was rated as the worst social networking site when it comes to user well-being (e.g., depression, anxiety, body image concerns, and loneliness) in comparison to Facebook, Snapchat, Twitter, and Youtube (Royal Society for Public Health, 2017). Rather than having the same perspective towards all social networking sites, we should focus on identifying the contextual features that might affect users differently within each of these sites (McFarland & Ployhart, 2015). Due to the relatively limited research on non-Facebook social networking sites, together with the concerning survey findings from the Royal Society for Public Health (2017), this study focused on the emotional consequences of the more image-based social networking site of Instagram (Stewart, 2016).

The current study is a randomized mixed-methods approach that investigated if the implementation of a theoretically driven experimental prevention can improve the emotional outcomes of Instagram users compared to users in a control condition.[1] To learn more about the emotional outcomes and the contextual features affecting users' emotions while on Instagram, users participated in qualitative one-on-one, semi-structured interviews. The literature review

[1] Prevention refers to interventions created before negative outcomes have occurred while intervention is used only after negative outcomes have already occurred (Muñoz et al., 1996). The approach in this study is categorized as prevention.

will begin by introducing the contextual features of Instagram followed by the theoretical framework of the study, emotion regulation. Next, the psychological variables of the current study will be reviewed. This will begin with the dependent variables of the current study, mood, self-esteem and loneliness. After that, there will be a brief review on social comparison orientation and narcissism which will be measured as covariates in the current study.

1.1 **Instagram**

Instagram is a social networking site that was created in 2010 (Pittman & Reich, 2016). It is a mobile application where users can post photos or videos with a caption (text). The most popular feature of Instagram is the ability to "filter" or digitally enhance photos and videos. Users can do this by manipulating the appearances of photos or videos through various templates provided within the platform (e.g., adjusting brightness, adding frames, using black and white filters). In addition to the ability to post comments on Instagram content, users can "like" peoples' photos or videos by tapping a "heart" icon. By tapping a "bookmark" icon, Instagram users can save photos or videos which will then be visible to the user from a private section of their profile. Other commonly used features of the site are Profile Tab, Instagram Feed, Activity Tab, Instagram Direct, Instagram Stories, Instagram Live, the Explore page, Instagram TV (IGTV), and Instagram Reels. Profile Tab is the hub where an Instagram user's photos and videos that have been shared are stored. Users can also see the people they're following and those who follow the user through the Profile Tab. Instagram Feed is where all posts from accounts followed by users will appear. The Activity Tab displays the likes and comments on an Instagram user's posts together with notifying the user if there is a request to follow their account. Instagram Direct gives users the ability to send personal messages to one or more people. Instagram Stories allow users to post photos or videos that disappear after 24 hours.

More than 500 million people use Instagram Stories every day (Instagram Info Center, 2019). Instagram Live is a feature on Instagram Stories that allows users to stream videos and engage with their followers in real-time. The Explore page provides content such as photos or videos that are most relevant to the user (determined by the algorithm within the site) beyond accounts that the user already follows. This can include content that is liked by people the users follow; content shared from similar accounts of interest, and content that overall Instagram users are highly engaged with (Instagram Info Center, 2019). IGTV is a standalone video application that allows for viewing longer videos compared to videos within Instagram. Instagram Reels allows users to record and edit 15-second multi-clip videos to be shared with others. As of June 2018, there were 1 billion monthly active users on Instagram, and 64% of the users are between the ages of 18 to 29 (Statista, 2019). Despite the popularity of Instagram, the research community has focused less on Instagram compared to Facebook (de Vries et al., 2018; Duggan, 2015).

There are unique characteristics of Instagram that separate it from other social networking sites. The type of social information displayed and experienced on Instagram is different from other social networking sites in at least three ways (Lup et al., 2015; Pittman & Reich, 2016). First, the emphasis on images distinguishes Instagram from more traditionally text-based social networking sites like Twitter (Pittman & Reich, 2016). Images offer a more intimate interpersonal experience compared to text-based sites (Pittman & Reich, 2016). Second, there is a greater tendency to post more positively filtered information on Instagram compared to Facebook (Lup et al., 2015). This could be due to the image-driven nature of Instagram and the accessibility of various features to digitally enhance photos which is a trend on Instagram. Additionally, even though Facebook is filled with positive images, users also share negative status updates (Moreno et al., 2011). The sharing of negative updates is less common on

Instagram (Moreno et al., 2011). Third, Instagram users are more likely to view information shared by strangers, as nonreciprocal connections can be made with others (Lup et al., 2015). For instance, individual can follow another person's account without having their own account mutually followed (Hu et al., 2014). Lup et al. (2015) surveyed 117 young adults (83% White/European American, 7% multiracial/ethnic or other, 7% Latino/Hispanic, 3% Asian/Pacific Islander, 1% Black/African American) and found that Instagram was related to less depressive symptoms for individuals who followed fewer strangers, but depressive symptoms increased for individuals who followed more strangers. In conclusion, acknowledging the contextual characteristics of Instagram is necessary because it allows us to better understand how Instagram can affect users differently compared to other social networking sites. The next subsection will explain the theoretical framework of the current study, emotion regulation.

1.2 **Emotion Regulation: Reappraisal**

Emotion regulation is the process of "influencing the emotions people have, when they have them, and how they experience and express these emotions" (Gross, 1998a, p. 275). Emotion regulation is represented in the process model shown in Figure 1. This process is separated into antecedent-focused emotion regulation and response-focused emotion regulation. Antecedent-focused emotion regulation is the stage before an emotional response has been fully produced. Within this stage, the emotional response of an individual can still be changed or modified (Gross et al., 2006). However, response-focused emotion regulation is the stage where emotions have already been generated so the goal here is to manage existing emotions (Gross et al., 2006).

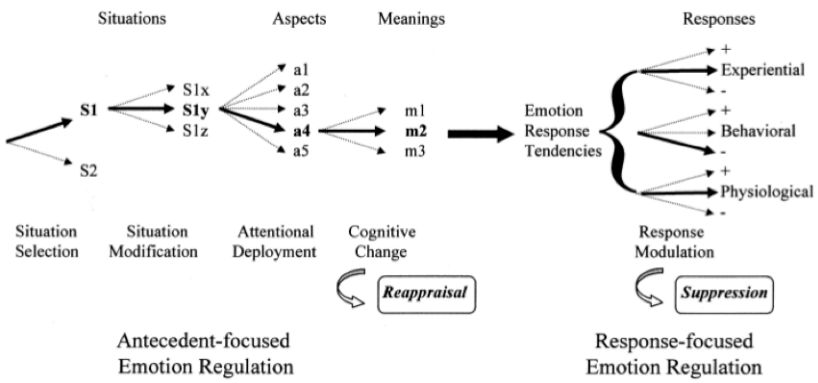

Figure 1. The process model of emotion regulation (Gross, 1998a)

Within this process model (Gross, 1998a), there are five sets of emotion regulation processes: situation selection, situation modification, attentional deployment, cognitive change, and response modulation. Situation selection are actions taken to make it more or less likely that an individual will experience desirable or undesirable emotions. For example, you can physically avoid a working space to prevent interacting with a colleague who upsets you. Situation modification refers to actions taken to alter the physical or external environment of a situation to change its emotional impact on the self. For example, if you went into a meeting room with the colleague you are upset with, you could sit away from your colleague to avoid negative emotions. Attentional deployment "refers to how individuals can direct their attention within a situation to influence their emotions" (Gross & Thompson, 2007, p. 13). This may be considered an internal version of situation selection, more likely to occur when one cannot change or modify the physical environment (Gross & Thompson, 2007). For instance, if the colleague you are upset with starts talking during the meeting, you can focus your attention on someone else. Cognitive change refers to "modifying one's evaluation of a situation to revise its emotional meaning" (Gross & Thompson, 2007, p. 14). Cognitive change could be utilized in external

situations (e.g., “This person is still my colleague, this is an opportunity for me to practice having more patience.”) or internal situations (e.g., “My increasing level of stress is because I’m tired, not because this person is making me upset.”). The last process in this model is response modulation which refers to directly controlling physiological, experiential, or behavioral responding of emotions. Response modulation only occurs after the emotional response tendencies have been generated. For instance, if the colleague who you are upset with brings up a topic that triggers anger, one behavioral response would be to suppress your facial expression from depicting anger. This reaction is known as suppression, inhibiting the expression of an emotional behavior (Gross, 1998a; Gross, 2001; Gross et al., 2006, Gross & Thompson, 2007).

The two most commonly studied emotion regulation strategies are cognitive reappraisal (a form of cognitive change) and suppression (a form of response modulation) (Gross & Thompson, 2007). This study focuses on cognitive reappraisal (referred as reappraisal from now onwards). Reappraisal is the cognitive interpretation of an emotion-eliciting situation to change its emotional impact (Gross, 2001; Gross, 2015). Since reappraisal occurs relatively early in the emotion generation process, it is easier to alter the outcome (emotion) by changing the meaning of our internal states (Gross, 1998a; Gross, 2002). Reappraisal can reduce the emotional experience in negative-emotion-eliciting contexts without cognitive, physiological, or interpersonal costs (Gross et al., 2006; Sheppes & Gross, 2011). Reappraisal is typically manipulated by instructing participants either to adopt an unemotional perspective or to reinterpret the emotional stimuli (e.g., film). In one study, right before watching a disgusting film about amputations, participants were instructed to either (1) adopt a detached and unemotional attitude towards the film (reappraisal condition), (2) act in a way that someone observing them will not be able to detect what they’re feeling (suppression condition), or (3) just watch the film

(control condition) (Gross, 1998b). The reappraisal participants experienced less disgust compared to participants in the control and suppression condition (Gross, 1998b). A similar study found participants who were instructed to reappraise their emotions before watching a film of a surgical procedure showed less subjective and physiological stress responses (Lazarus & Alfert, 1964).

In an educational context, researchers investigated whether manipulating the reappraisal process can lead to changes in test performances (Jamieson et al., 2010). Sixty participants were brought into a lab setting for a practice version of the Graduate Record Examination (GRE) test. There was no mention of participants' racial or ethnic demographic. All participants received the same initial instructions. Right before the practice test, only participants in the reappraisal condition heard/read the following:

> "People think that feeling anxious while taking a standardized test will make them do poorly on the test. However, recent research suggests that arousal doesn't hurt performance on these tests and can even help performance…people who feel anxious during a test might actually do better. This means that you shouldn't feel concerned if you do feel anxious while taking today's GRE test. If you find yourself feeling anxious, simply remind yourself that your arousal could be helping you do well" (Jamieson et al., 2010, p. 209).

Participants in the reappraisal condition scored significantly higher on the quantitative portion of the practice GRE compared to the control condition. There were no differences between conditions on the verbal section scores. The researchers argued that reappraisal improves executive functioning which is consistent with the set of skills required for the quantitative portion (Johns et al., 2008), rather than relying more on long-term memory for the

verbal portion (Halpern, 2004). Additionally, these results were replicated when the same participants returned to the lab 1-3 months later to report their official scores of the actual GRE exam. The same participants in the reappraisal condition during the practice test scored higher in the quantitative section of the actual GRE test compared to the control participants. The lab reappraisal manipulation generalized to the actual GRE exam. Similar studies have shown that instructing participants to reappraise before being exposed to an emotional stimulus can improve cardiovascular and cognitive responses to stress (Jamieson et al., 2012), reduce reports of test anxiety and improve academic performance (Jamieson et al., 2016; Brady et al., 2018).

Most of the studies that examine emotion regulation including the ones reviewed in this section so far focus on reappraising emotions in a negative-emotion-eliciting context (for additional review, see Ochsner & Gross, 2005). However, it is worth acknowledging that emotion regulation does not only consist of explicitly reducing negative emotions or occurring in a negative-emotion-eliciting context. There is work showing how individuals can reappraise by up-regulating positive emotions (Giuliani et al., 2008; McRae at al., 2012; Quoidbach et al., 2015, Wang et al., 2014). In their review of positive interventions based on the process model of emotion regulation (Gross, 1998), Quoidbach et al. (2015) stated that reappraisal is effective when it comes to creating short-term increases in positive emotions. For instance, Giuliani et al. (2008) examined how different reappraisal instructions affect participants when watching amusing clips. Sixteen female undergraduate participants (9 Caucasian, 4 Mixed Race, 2 Hispanic, 1 Asian) were recruited into a within subjects design where participants watched amusing clips and were instructed (randomized order) to react naturally (neutral), increase

amusement, or decrease amusement.[2] Participants were trained with contextualized examples to ensure that they were using reappraisal to increase or decrease amusement, respectively (Giuliani et al., 2008). In addition to behavioral and physiological measures, participants reported their level of amusement on an 8-point Likert scale (1 = *not amused*, 8 = *very amused*) after each clip. The results showed that participants' level of amusement as reported across measures (experiential, behavioral, physiological) was consistent with the type of instructions given to them. For example, when instructed to reappraise by increasing amusement, participants reported those clips as significantly more amusing compared to the other conditions. Giuliani and colleagues' (2008) findings show that even if the emotional impact of a stimulus is positive, it can be improved by reappraisal through the up-regulation of positive emotions.

In conclusion, reappraisal is predominantly known as a strategy that can improve the emotional impact of negative-emotion-eliciting situations in various contexts (Brady et al., 2018; Gross et al., 2006; Jamieson et al., 2010; Jamieson et al., 2012; Jamieson et al., 2016; Lazarus & Alfert, 1964; Sheppes & Gross, 2011). Additionally, reappraisal can be used to specifically up-regulate positive emotions (McRae at al., 2012; Quoidbach et al., 2015) and this can work even when the initial situation is perceived to be positive (Giuliani et al., 2008). In the current study, participants were not given explicit instructions to either reappraise by reducing negative emotions or increasing positive emotions. However, these overall findings are relevant because it gives us the ability to explain that participants who may not perceive the Instagram experience to be a negative-emotion-eliciting context can still improve their emotional experience via

[2] The study by Giuliani et al. (2008) only recruited women to control for sex differences when it comes to emotional responsivity (Bradley et al., 2001).

reappraisal.[3] The next three subsections will focus on the dependent variables of the current study: mood, self-esteem, and loneliness.

1.3 **Mood**

People can experience mood either directly or from a reflective point of view (Mayer & Gaschke, 1988). A direct experience of mood tends to occur along dimensions such as pleasant-unpleasant or arousal-calm (Russell, 1978). Moods such as happiness and sadness can be arranged within these types of bipolar dimensions (Mayer & Gaschke, 1988). On the other hand, individuals can also look back and have additional thoughts about their mood (Mayer & Stevens, 1994). For example, thinking "I shouldn't feel this way" is an example of a reflective experience that may affect an individual's current mood.

Sagioglou and Greitemeyer (2014) investigated the relationship between Facebook use and mood. In the first study, a correlational design, 123 German-speaking Facebook users (no categorization of racial/ethnic demographic) filled out a brief online survey. The authors found an inverse relationship between amount of time spent on Facebook and positive mood. Specifically, participants who spent more time on Facebook reported a more negative mood. To establish a causal claim, the second study recruited 263 American participants via Mechanical Turk (MTurk) and then randomly assigned them into three groups. There was no mention of participants' racial/ethnic demographic. The first group was instructed to browse Facebook for 20 minutes (e.g., post, look at pictures), the second group was asked to browse the internet for 20 minutes without using any social networking sites, and the last group was given no instructions but were provided with the dependent measures instantly. The dependent measures included

[3] The manipulation check items (Gross & John, 2003; Nezlek & Kuppens, 2008) in this study separately measured whether participants reappraised either by feeling more positive or feeling less negative (see Appendix F).

questions addressing a potential mediator variable, meaningfulness of activity. For example, one question asked was, “How much do you feel like you have spent your time on something meaningful?” Participants responded on a 7-point Likert scale ranging from 1 (*not at all*) to 7 (*very much*). Next, participants’ mood was assessed using the PANAS (Watson et al., 1988) questionnaire. Participants who used Facebook for 20 minutes reported feeling more negative mood compared to the other two groups. There were no differences in mood between the other two groups. A mediation analysis showed that when meaningfulness of activity is controlled, the effects of Facebook use on mood was non-significant. In other words, the effects of using Facebook leading to a more negative mood is mediated by participants’ perception of not doing anything meaningful. Overall, Sagioglou and Greitemeyer (2014) established a causal relationship between Facebook use and negative mood.

There is limited work on the impact of Instagram on mood. The work so far investigates some type of relationship between Instagram and mood with an emphasis on female body image concerns (Brown & Tiggemann, 2016; Cohen et al., 2019; Rounds & Stutts, 2020; Slater et al., 2017). For example, being exposed to attractive images of other women increases negative mood (Brown & Tiggemann, 2016; Rounds & Stutts, 2020), but being exposed to content such as body positive images or self-compassion quotes relates to an improvement in mood (Cohen et al., 2019; Slater et al., 2017). Slater et al. (2019) designed an experiment to observe if women being exposed to a parody version of thin-ideal celebrity images on Instagram can experience more positive mood. One hundred and two women (18 to 30 years old) were recruited through social media (93.1% White, 4.9% Mixed race, 2.0% Asian, 1.4% Other). Participants were randomly assigned into one of two conditions (thin-ideal, parody). The thin-ideal condition represented a common environment on Instagram where women are exposed to photos of celebrities who

display extreme physical beauty based on social standards (e.g., Kim Kardashian). The parody condition was meant to be a funny imitation of these same photos done by Australian female comedian, Celeste Barber (Slater et al., 2019). Within their respective conditions, participants viewed 16 images for 15 seconds each. Visual analogue scales (VAS; Heinberg & Thompson, 1995) were used to measure participants' state mood and body satisfaction scores. Participants were asked to move a vertical marker between rating scales labelled *not at all* (0) and *extremely* (10) to indicate how they're feeling "right now". Body satisfaction was measured using three items (e.g., satisfied with my overall appearance). Mood was measured using four items: anxious, depressed, confident, and happy. Slater et al. (2019) found that participants in the parody condition scored higher on body satisfaction and mood (happiness). One of the author's explanation was that the images in the parody condition made participants feel better because it was more similar to how they look relative to the images in the thin-ideal condition. This finding highlights the fact that there are routes for researchers to intervene and improve the experiences of Instagram users. The current study will ask for participants to report their gender in the demographic questionnaire and this will aid in exploring potential gender differences in mood before and after using Instagram.

Totterdell and Parkinson (1999) explored the effectiveness of various emotion regulation strategies when it comes to improving mood. They conducted a field study with 30 trainee primary and secondary school teachers in the UK. These teachers were given a pocket computer with reminders to report their mood and mood regulation strategies during a 2-week period of teaching placement. For the first and last four days of the study, teachers were asked to regulate their mood using whichever method they normally used. The intervention period occurred between day 5 to day 10. During the intervention period, "half of the teachers were asked to use

engagement strategies, while the other half were asked to use diversion strategies" (Totterdell & Parkinson, 1999, p. 222). Engagement strategies involve directing attention towards the affect (e.g., reappraisal, social support, and venting), while diversion strategies focused attention away from the affect (e.g., distraction, avoidance). Mood was measured every 2 hours using bipolar rating scales containing adjectives (e.g., sad-happy and depressed-cheerful; Matthews et al., 1990). During those same intervals, participants completed 10 unipolar rating scales stating the extent to which each respective regulation strategy was used. The results showed that participants using engagement strategies perceived more success at regulating their mood compared to participants using diversion strategies. Reappraisal was one of the two strategies correlated with the highest improvement in mood scores. The current study will investigate whether reappraisal impacts the mood of Instagram users. Mood will be measured both at the beginning of the study to account for individual differences and also at the end of the study as an outcome variable.

1.4 **Self-Esteem**

Smith and Mackie (2007) defined self-esteem as a person's overall positive or negative evaluation of his or her worth. This is the degree to which an individual views the self as competent (Coopersmith, 1967). Every individual has an important need to maintain and/or improve their self-esteem (Krämer & Winter, 2008). Self-esteem can be described as "both a stable trait that can evolve over time, but also a fluid state responsive to day-to-day situations" (Heatherton & Polivy, 1991, p. 895).

There is work showing a negative relationship between time spent on Facebook and self-esteem. Specifically, a survey of 70 undergraduate college students (89.6% Caucasian/Non-Hispanic, 5.8% Hispanic, 2.9% African American, 1.4% Other) found that spending more time

on Facebook was related to having a lower self-esteem (Kalpidou et al., 2011). In a meta-analysis looking at the relationship between individual characteristics and problematic Facebook use (PFU), researchers found that lower self-esteem was related to more problematic Facebook use (PFU) (Marino et al., 2018). In this case, Facebook use was described as "problematic" when it interrupted the users' daily life such as being associated with lower sleep quality or higher frequency of making cognitive mistakes (Marino et al., 2018; Xanidis & Brignell, 2016). Unfortunately, there is relatively less research investigating the roles of self-esteem in Instagram use.

In a recent study, Martinez-Pecino and Garcia-Gavilán (2019) investigated the "moderating role of self-esteem in the relationship between *likes* and problematic Instagram use (PIU)" (Martinez-Pecino & Garcia-Gavilán, 2019, p. 414). In the context of social networking sites, receiving *likes* represents obtaining a reward or recognition from others. To test this relationship, 233 high school students in Spain were recruited to participate in a quantitative study. There was no mention of participants' racial/ethnic demographic. To measure *likes*, participants were asked, "How many likes do you usually get in your Instagram posts", with the following answer options: 1 (0-60), 2 (61-120), 3 (121-180), and 4 (181 or more). Problematic Instagram Use (PIU) was measured using the 15-item adapted version of the Problematic Facebook Use (PFU) scale (the word Facebook was replaced with Instagram). An example of an item was, "I have difficulty controlling the amount of time I spent on Instagram". Higher overall scores reflect higher PIU. Self-esteem was measured using the Rosenberg self-esteem scale (Rosenberg, 1965). Consistent with the authors' predictions, they found a positive relationship between number of *likes* and PIU and a negative relationship between self-esteem and PIU. Participant who received more *likes* engaged in more problematic Instagram use. Those with

lower self-esteem scores were more likely to be associated with PIU. Self-esteem was a moderator such that the positive relationship between *likes* and PIU was reduced for participants with a higher self-esteem compared to those with a lower self-esteem. In this case, a higher self-esteem served as a protective factor in the relationship between receiving more *likes* and PIU. Martinez-Pecino and Garcia-Gavilán (2019) recommended future researchers to target self-esteem within prevention efforts for reducing problematic use.

Since self-esteem has been shown to influence one's experience using social networking sites, this study will measure users' self-esteem at the beginning of the study. Additionally, to respond to the recommendations made by Martinez-Pecino and Garcia-Gavilán (2019), this study aims to observe if a reappraisal manipulation can have a positive impact on Instagram users' state self-esteem at the end of the study. So far, there is minimal research on the relationship between reappraisal and self-esteem (Gable & Reis, 2010; Nezlek & Kuppens, 2008; Reis et al., 2010). Nezlek and Kuppens (2008) were interested in the relationship between emotion regulation of positive and negative emotions with the daily experiences of individuals including their self-esteem. Each day for an average of three weeks, 153 undergraduate participants reported their emotion regulation strategies online. There was no report on the racial or ethnic demographic of the participants. The daily measures included a 4-item self-esteem measure (Rosenberg, 1965), three items measuring daily psychological adjustment (Beck, 1972), and measures of daily affect using a circumplex model focusing on different types of positive and negative affect (Feldman Barrett et al., 1998). Additionally, daily measures of emotion regulation strategies were taken using the subcategories for measuring reappraisal and suppression (Gross & John, 2003). Overall, the authors found significant correlations specifically involving positive emotions. Reappraisal of positive emotions was "positively related to self-esteem, psychological

adjustment, and positive affect" (Nezlek & Kuppens, 2008, p. 569). Suppressing positive emotions was "associated with decreased self-esteem, decreased psychological adjustment, decreased positive emotions, and greater negative emotions" (Nezlek & Kuppens, 2008, p. 569). This finding shows that there may be a relationship between reappraisal and self-esteem. The current study will examine whether reappraisal can improve the self-esteem of Instagram users in an experimental setting.

1.5 **Loneliness**

Loneliness is usually described in terms of one's lack of connectedness to other people, or when a person feels unpleasant due to the perception that their social relationships are deficient in a meaningful way (Perlman & Peplau, 1981). According to Perlman and Peplau (1984), loneliness is made up of three elements. First, there is a mismatch between an individual's needs for social contact and their actual social relationships. Second, loneliness is subjective such that an individual can feel alone without being physically lonely. For instance, one can feel lonely in a crowd. Third, loneliness is an aversive experience (Perlman & Peplau, 1984).

There has been a mixed set of findings when it comes to investigating the relationship between Instagram use and loneliness. Based on an online survey of 432 undergraduate students, Pittman (2015) found that as Instagram activity increased, self-reported loneliness decreased. In another study using 253 undergraduate participants, Pittman and Reich (2016) found that using image-based social networking sites such as Instagram or Snapchat was associated with lower loneliness scores and an increase in happiness and satisfaction with life. In both these studies, no racial or ethnic demographic information was provided (Pittman, 2015; Pittman & Reich, 2016). To conduct a qualitative analysis, Pittman and Reich (2016) studied the open-ended responses

that participants provided regarding the three words or phrases they associated with their use of multiple social networking sites as well as their motivation for using each respective platform (e.g., Instagram, Snapchat, Twitter, and Yik Yak). Based on the words or phrases provided by participants, the qualitative data analysis showed that the positive effects of image-based sites such as Instagram on reducing loneliness may be due to the opportunity for a more intimate connection offered by image-based social networking sites compared to text-based social networking sites such as Twitter (Pittman & Reich, 2016).

However, Yang (2016) investigated the relationships between different types of Instagram use and loneliness. Instagram use was categorized into Instagram *interaction* (communicating directly with other people), *browsing* (checking the home page and other's profiles), and *broadcasting* (sharing information not directed to specific individuals) (Yang, 2016). Based on a survey of 208 undergraduate students (ages 18-25), "both Instagram *interaction* and *browsing* were related to lower scores of loneliness. However, Instagram *broadcasting* was related to higher loneliness" (Yang, 2016, p. 706). The pattern of Instagram *interaction* being associated with lower loneliness is consistent with previous studies showing that using social networking sites to actually socialize with others is associated with improved well-being (Brandtzæg, 2012; Burke et al., 2010). Instagram browsing being associated with lower loneliness was an unexpected finding. This is because browsing without directly interacting with others overlaps with the idea of passive consumption (Verduyn et al., 2015). Passive consumption which involves consuming information without direct interactions (e.g., scrolling through news feed) has been shown to have a negative relationship with users' well-being (Burke et al., 2010; Verduyn et al., 2015). The authors explained that Instagram browsing might not be as passive or lacking interactions because users are able to experience less

loneliness when made aware of the connections they have on Instagram (Yang, 2016). On the other hand, Instagram broadcasting was associated with higher loneliness because it could be an indirect method of attention seeking by users (Yang, 2016). When broadcasting information, the lack of acknowledgment or awareness of a user's intention by their connections could make users feel disconnected (Yang, 2016).

Given these mixed findings, the current study aims to observe the general effects of using Instagram on loneliness and whether a prevention approach can make a difference on participants' loneliness score. Loneliness will be measured both at the beginning and at the end of the study. In terms of the relationship between reappraisal and loneliness, Kearns and Creavan (2017) investigated how different emotion regulation strategies (e.g., reappraisal, distraction, rumination) might explain variability in loneliness. The authors recruited 116 community sample participants with no information provided on their racial/ethnic demographics. Emotion regulation styles were measured by providing participants with a variety of emotion-eliciting vignettes from the Emotion Regulation Profile-Revised Version (ERP-R; Nelis et al., 2011). Next, participants listed which strategy they would use when dealing with these hypothetical scenarios. Participants' loneliness was measured using the 20-item UCLA Loneliness Scale (Russell, 1996). Kearns and Creaven (2017) found that participants who used reappraisal in response to negative emotions were associated with having lower scores of loneliness. On the other hand, participants who used strategies which lowered positive emotions in general were more susceptible to higher scores of loneliness. Considering the associative relationships between reappraisal and loneliness, the current study will extend previous research by testing a causal claim to see if a reappraisal manipulation can reduce participants' loneliness scores.

1.6 Social Comparison Orientation

According to the Festinger's (1954) theory of social comparison, it is natural for us to self-evaluate by comparing ourselves with others. This is especially the case when we lack objective measures to assess our abilities or situations in life. The process of self-evaluation is typically done by comparing ourselves with those who are viewed as similar to us (Festinger, 1954). Festinger's (1954) theory of social comparison was later elaborated to include two types of comparisons that individuals can perform: upward and downward social comparison. Upward social comparison occurs when individuals motivated by self-improvement compare themselves with someone they perceive to be superior (Wheeler, 1966). Downward social comparison occurs when individuals compare themselves to others perceived to be lower in status or less important than the perceiver in order to enhance their feelings (Wills, 1981; Wood, 1989). Individuals tend to engage in more upward social comparison than downward social comparison on social networking sites (Vogel et al., 2014). The higher likelihood of sharing more positive information on Instagram with the added features of digitally manipulated photos could be associated with having superior lives, which may encourage greater frequency of upward social comparison by other users (Lup et al., 2015). Users may compare themselves with these "superior" individuals under the impression that they are more accomplished or have more positive experiences in their life (Appel et al., 2016; Yang & Brown, 2016).

Social comparison orientation (SCO) derives from the social comparison theory. SCO is a personality trait that involves the tendency "to compare one's accomplishment, one's situation, and one's experiences with those of others" (Buunk & Gibbons, 2006, p. 16). On Instagram, users are exposed to large amounts of visual information (e.g., photos, videos) depicting what other people are doing and also the emotions they are expressing. This creates an abundance of

opportunities for users to compare themselves with others (Yang, 2016). Despite the different types of social comparison (upward vs. downward), it is common for researchers to measure SCO by describing an individual's tendency to generally compare themselves with others, ranging from high to low (de Vries et al., 2018; Vogel et al., 2015; Yang, 2016). Yang (2016) collected self-reported survey data from 208 undergraduates (57% White, 27% Black) to investigate the moderating role of SCO in the relationship between Instagram use and loneliness. Among participants who were low on SCO, Instagram use was actually related to lower loneliness scores (Yang, 2016). An explanation could be that participants with lower tendencies to compare themselves with others might have engaged more in the social information shared by others and felt more connected (less lonely). Instagram use was associated with higher loneliness scores among participants who were high on SCO. In other words, the relationship between greater Instagram use and lower loneliness scores were nullified for individuals who scored high on SCO. The author argues that this could be due to individuals high on SCO generating poor self-evaluations (e.g., feeling worse about yourself or your situation) from their upward comparison to others on Instagram. Taking into account the enormous opportunities for users to compare themselves with others on Instagram together with the substantial role of SCO when looking at the relationship between Instagram use and emotional outcomes (de Vries et al., 2018; Lup et al., 2015; Yang, 2016), the current study will measure SCO as a control variable.

1.7 **Narcissism**

Narcissism is "a personality trait reflecting grandiose and an inflated self-concept" (Buffardi & Campbell, 2008, p. 1304). Narcissistic individuals are described with an exaggerated positive view of themselves, including their importance and physical attractiveness (Campbell et al., 2002; John & Robins, 1994). Individuals who score high on narcissism are more likely to

spend a greater amount of time on social networking sites such as Facebook and post self-promoting information (McCain et al., 2016; Mehdizadeh, 2010; Ong et al., 2011). One study using an online survey of 212 active Instagram users in Korea (no mention of racial/ethnic demographic) found that individuals who scored higher on narcissism posted more selfies (photographs that one has taken of oneself), spent more time on Instagram, and updated their profile pictures more often compared to those who scored lower on narcissism (Moon et al., 2016). This shows that individual differences in narcissism may be associated with different types of Instagram behaviors.

In an exploratory study investigating the relationship between narcissism, self-esteem, and Instagram, Paramboukis et al. (2016) found that there was weak evidence for the relationship between narcissism and Instagram use ($N = 200$; no mention of racial/ethnic demographic). However, what emerged was a relationship between the subcategories of narcissism and self-esteem. Specifically, Paramboukis et al. (2016) measured participants' grandiose narcissism and vulnerable narcissism. Grandiose narcissism "reflects traits such as exhibitionism, callousness, extraversion, manipulativeness, superiority, aggression, indifference and seeking of acclaim, whereas the vulnerable dimension of narcissism is believed to reflect feelings of inadequacy, emptiness and shame, reactive anger, helplessness, hypervigilance to insult, excessive shyness, and interpersonal avoidance" (Paramboukis et al., 2016, p. 83). Paramboukis et al. (2016) found that grandiose narcissism had a weak, positive relationship with self-esteem while vulnerable narcissism had a negative relationship with self-esteem. Based on responses to the Instagram Usage, Behavior, and Emotional Reactions Questionnaire created by the authors, individuals who scored high on grandiose narcissism tended "to use Instagram to show their superiority over others, but were not overly sensitive to feedback" (Paramboukis et al., 2016, p. 91), while

vulnerable narcissists pursued public praise and were more sensitive to feedback on their posts (Paramboukis et al., 2016). Their findings highlighted that vulnerable narcissism, a subcategory of narcissism, was associated with lower self-esteem.

So far, individual differences in narcissism have been associated with different behaviors or experiences for individuals using Instagram (McCain et al., 2016; Mehdizadeh, 2010, Moon et al., 2016). Additionally, there is some evidence that subcategories of narcissism are differentially associated with participants' self-esteem (Bosson et al., 2008; Paramboukis et al., 2016). Since self-esteem is one of the outcome variables in the current study, narcissism will be measured as a control variable to account for the potential relationship between participants' narcissism and self-esteem.

1.8 Current study

The current study is a randomized mixed-methods approach on how a reappraisal prevention impacts the emotional outcomes of Instagram users. Relative to samples in previous studies, the current study recruited a diverse sample of participants to improve the generalizability of the findings to the population. The quantitative section examined the effect of a reappraisal prevention approach on the mood, self-esteem, and loneliness of participants after using Instagram. Social comparison orientation (SCO) and narcissism were measured as control variables. Based on the process model of emotion regulation (Gross, 1998a), it was predicted that participants in the reappraisal prevention condition will reinterpret the emotion-eliciting experiences during their Instagram use thereby improving their emotional consequences compared to participants in the control condition. Three specific hypotheses were proposed: (1) Mood will improve more from pretest to posttest for the reappraisal participants compared to control participants. (2) Self-esteem scores will increase more from pretest to posttest for the

reappraisal participants compared to control participants. (3) Loneliness score will decrease more from pretest to posttest for the reappraisal participants compared to control participants. The qualitative section of the study examined participants' verbal descriptions of their experiences right after using Instagram. Semi-structured one-on-one interviews were conducted to: (1) understand participants' thoughts and emotions during their Instagram use and (2) learn participants' reasoning and the context surrounding their thoughts and emotions while using Instagram.

2. METHOD

2.1 Participants

There were 247 participants (M = 20.10 years old; 189 females, 50 males, 2 non-binary, 1 she/they, 1 genderless, 4 chose not to respond) in the final sample (one participant was initially excluded due to missing pretest data). According to a meta-analysis (Webb et al., 2012), the average effect size of reappraisal studies is $d = .36$. This effect size was used to estimate the sample size in this study. A G*Power analysis (Faul et al., 2007) indicated that the total sample size needed to achieve a power of .80 is 123 participants in each condition (N = 246).

The racial and ethnic composition of the 247 participants were 81 South Asian/South Asian American, 52 Latinx/Hispanic American, 44 White/European American, 31 East Asian/East Asian American, 16 Middle Eastern/Arab American, 14 identified as 'Other', 8 Black/African American, and 1 Native American/American Indian. In terms of year in college, there were 52 freshmen, 67 sophomores, 68 juniors, and 60 seniors.

This study was conducted across two semesters, Fall 2020 to Spring 2021 at a large, racially diverse, urban Midwestern public university, whose undergraduate population is approximately 36% White, 26% Latinx/Hispanic, 23% Asian, 8% Black, and 7% Other racial/ethnic group. Recruitment was open to undergraduate students 18 years of age and older.

2.2 Quantitative Design

This study was a 2 (condition: reappraisal, control) x 2 (time: pretest, posttest) mixed-subjects design. The condition was a between-subjects factor and time (pretest, posttest) was a within-subjects factor. Participants were randomly assigned into either the treatment condition (reappraisal) or the control condition before the study began. Regardless of condition, all participants completed mood, self-esteem, and loneliness measures for the pretest before the

study began and at the posttest, after using Instagram. Narcissism and social comparison orientation (SCO) scores were measured as control variables at pretest. The rationale for using a pretest-posttest is to quantify the extent of improvement due to treatment (vs. control).

2.3 Measures

Social Comparison Orientation (SCO). A 6-item shortened version of the Iowa-Netherlands Comparison Orientation Measure (INCOM) was used to measure social comparison orientation (Buunk & Gibbons, 2006). The original measure was developed by Gibbons and Buunk (1999). Participants reported the degree to which they agree with six statements with response options ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). An example item is "I always pay a lot of attention to how I do things compared with how others do things". Higher SCO scores reflect greater tendency to compare the self to others. Reliability of the scale was α = .77 using a sample of 275 undergraduate students in the US (72.4% White, 15.3% Black, 5.1% Hispanic, 4.7% other, 2.5% Pacific Islander; Vogel et al., 2015). The items are available in Appendix A. Reliability for the current sample was α = .75.

Narcissism. The Narcissistic Personality Inventory-16 (NPI-16), a short form of the NPI-40 was used to measure narcissism (Ames et al., 2006; Raskin & Terry, 1988). The NPI-16 and NPI-40 has been shown to be highly correlated to each other (Ames et al., 2006). The aim of using a shorter version of the measure was to prevent participant fatigue. The NPI-16 (see Appendix B) is a forced-choice questionnaire in which narcissism-consistent responses are coded as 1 and narcissism-inconsistent responses are coded as 0. Higher scores on NPI-16 represent greater narcissistic tendencies. Reliability of the scale was α = .82 from a sample of 110 community adults in the US (91% White, 6% Black; Miller et al., 2014). Reliability of the scale for the current study was α = .68.

Mood. The 16-item Brief Mood Introspection Scale was used to measure state mood (BMIS; Mayer & Gaschke, 1988). Participants indicated how well each adjective describes their current mood ranging from XX (*definitely do not feel)*, X (*do not feel*), V (*slightly feel*), to VV (*definitely feel)*. Sample items include "happy" and "fed up". The response scales XX, X, V, and VV were converted into numerical values 1, 2, 3, and 4 respectively. Once adjectives representing negative mood were reverse-scored, higher total scores represented more positive mood. Reliability of the scale was between α = .76 to .83 from a sample of 58 males (21-35 years old) in Buffalo, New York (91% European American, 3.4% African American, and 3.4% Hispanic American; Muraven et al., 2002). The same items were used for the pretest and posttest (Appendix C). The reliability of the BMIS in the current sample was α = .81 in the pretest and α = .85 in the posttest.

Self-Esteem. The 20-item State Self-Esteem Scale was used to measure state self-esteem (SSES; Heatherton & Polivy, 1991). Participants rated what they felt was true of themselves at the moment based on statements describing self-esteem ranging from 1 (*Not at all*) to 5 (*Extremely*). An example item is "I feel good about myself". Higher scores represent higher self-esteem. Reliability of the scale was α = .90 from a sample of 128 undergraduate students in the US, "61.7% White, 17.2% Black, 3.9% Asian, 0.8% American Indian or Alaskan Native, 12.5% mixed race, and 3.9% unknown race" (Vogel et al., 2014, p. 212). The same items were used for the pretest and posttest (Appendix D). In the current study, the reliability of the SSES was α = 0.92 in the pretest and α = 0.93 in the posttest.

Loneliness. The 20-item UCLA Loneliness Scale (Version 3) was used to measure loneliness (Russell, 1996). In the original scale, participants rated how often they felt each item on a four-point Likert scale ranging from 1 (*Never*) to 4 (*Always*). A sample item is "How often

do you feel that you are no longer close to anyone?" Higher scores indicate greater loneliness. Based on data from 208 undergraduate students in the US (57% White, 27% Black), the scale showed high reliability (α = .93; Yang, 2016).

Since this study aimed to assess a state measure of loneliness before and after using Instagram, the instruction and items were revised to better represent a state measure. For instance, the sample item above was revised to "Do you feel that you are no longer close to anyone?" For all 20 items, the phrase "How often" was removed. The response options were revised to range from 1 (*Not at all*) to 4 (*Extremely*). A separate reliability test was conducted for the revised items for the current sample. The items are available in Appendix E. The reliability of the revised state measure of loneliness in this study was α = 0.93 in both the pretest and posttest.

Video Manipulation. Participants in the treatment condition were shown a video prompt (https://www.youtube.com/watch?v=8M6kj5XR4Ps&feature=youtu.be) containing the following message:

> "*On social media, people tend to only share their highlights. Although it's normal for us to compare ourselves to others, sometimes what people post on Instagram can make it seem like their life is more exciting than ours. Since a lot of real life struggles and frustrations that we all go through are not shared online, you should avoid being critical of yourself and comparing yourself to others. Remember, most people experience the same type of emotions that you do while using Instagram. Please proceed to using Instagram as you normally do."* (92 words).

Based on the taxonomy presented by Webb et al. (2012) explaining the specific strategies within emotion regulation processes, the reappraisal message in the treatment condition focused on normalizing emotions that individuals may experience while using Instagram. Participants in

the control condition were shown a video prompt (https://www.youtube.com/watch?v=hAwMkdWy2wE&feature=youtu.be) containing the following message:

> "*In October 2010, Instagram was founded by Kevin Systrom and Mike Krieger. Once it was launched, the founders thought that Instagram's design was too similar to another app. Based on that feedback and the advancement of camera phone technology, the founders redesigned Instagram into the photo-sharing app that we are familiar with today. Now, Instagram is one of the main social networking sites used by people across the world. This is just a little background information about the history of Instagram. Please proceed to using Instagram as you normally do*." (90 words).

The video format was used for the manipulation in the current study because it is consistent with the type of information commonly shared on Instagram (e.g., video, Instagram Stories, Instagram Live). Additionally, videos have been shown to be more effective at improving various outcomes compared to text-based messages. For example, to improve participants' knowledge and behavioral practices when it comes to using sunscreen to prevent skin cancer, Armstrong et al. (2011) randomized participants to receive either video-based or text-based messages. Armstrong et al. (2011) found that participants who received the video-based intervention improved their knowledge about sunscreen use and their sunscreen related behavioral practices. Furthermore, these participants rated the video format as more engaging and practical (for other examples, see Stanczyk et al., 2016; Buckley et al., 2018).

The reappraisal and control video in the current study are 31 to 34 seconds long, respectively. While there has been work using videos with similar lengths (24-38 seconds; (Brohmer et al., 2019), the purpose of the relatively short videos in the current study was to

approximate the length of videos that are viewed by Instagram users. For example, videos posted on Instagram typically range from 15 to 60 seconds. For that reason, the length of the videos in this study are considered appropriate since they fall within this range.

Manipulation Check. To check the efficacy of the reappraisal manipulation, participants were asked the following questions at the end of the posttest, "When I wanted to feel a more positive emotion (such as happiness or amusement), I changed what I was thinking about" and "When I wanted to feel less negative emotion (such as sadness or anger), I changed what I was thinking about" (see Appendix F). These items were taken from Nezlek & Kuppens' (2008) adaptation of the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003). The ERQ items were revised to measure state-level rather than trait-level emotion regulation (Nezlek & Kuppens, 2008). The answer options for each item ranged from 1 (*Strongly disagree*) to 7 (*Strongly agree*). Participants in the reappraisal condition were expected to score higher on both items compared to participants in the control condition.

Instagram Usage Tracking Form. To ensure that there was no systematic variability between how participants in the treatment and control condition were using Instagram (Morling, 2012), the types of Instagram features used by the participants were tracked by the research team (see Appendix G). For each participant, the research team entered a "1" for each Instagram feature used. This data was used to compare the use of Instagram features between participants in the treatment and control condition to observe if there were any significant differences.

Interview Protocol. Each participant was interviewed while viewing the video recording of their Instagram use after completing the survey measures (see Appendix H for the full study session script). Participants were encouraged to share any thoughts that they had as they watched the video of their Instagram use with the following prompt, "if there was something that you

thought was interesting, or something you liked or disliked or just wanted to share, please feel free to". At several points (at least five; every 2 minutes) while watching the video recording, the experimenter paused the video recording and participants were asked the following questions:

What did you feel here?

Why did you feel that way?

After viewing the recording of participants' 10-minute Instagram use, participants were asked if they would like to share any other thoughts or opinions that they had. Once participants finished responding, the interview session concluded.

Demographic Questionnaire. Participants completed a demographic questionnaire (see Appendix I) to obtain information regarding participants' race/ethnicity, gender, and age. Additional Instagram related information was requested such as whether their account is private or public, number of accounts participants have, number of posts, number of followers, number of people being followed, and daily average time spent on Instagram. Out of the 247 participants, 167 participants reported using a private account as opposed to a public account. The average number of Instagram accounts owned by participants was 1.91 ranging from one to seven accounts. The average number of posts participants had was 80, the average number of followers were 639, and the average number of people participants followed through their Instagram account was 690.[4]

There were two qualitative questions included at the end of the demographic questionnaire. Participants were asked, "Was that typical of how you use Instagram?" Those who

[4] Participants were asked about the daily average time spent on Instagram based on their activity settings within the application. Many participants deactivated their account the day before the study to avoid accidentally using Instagram before the session. Unfortunately, deactivation led to previous days appearing as zero minutes so this meant the information shared by participants was not representative of their actual daily average. For that reason, this variable was discarded.

answered “No” were requested to explain the reasoning behind their “No” response. Out of 247 participants, 224 responded “Yes”. From the 23 participants who said “No”, some participants said they do use Instagram frequently but less than 10 minutes at a time (n = 9). Seven participants stated that they were going through phases where they tried to avoid the Instagram application. A couple of participants stated that they occasionally use Instagram to directly call friends which did not feel like a suitable option during the study (n = 2) while others normally use Instagram longer than 10 minutes (n = 2). Finally, two other participants said that they normally do not use Instagram while being recorded and one participant did not provide an explanation.

The second question, “Describe the Instagram account that you picked in this study”, asked participants to describe the specific account they used for this study. Majority of participants stated that they used their main Instagram account, with which they interact with friends, family, and other content. Other participants stated that they were using accounts for other commitments, such as pet accounts, club or student organization pages, or business accounts. Some participants mentioned using their Instagram account for inspiration and self-motivation. Two participants reported that they used their “Finsta” account in the study. The word “Finsta”, which is a shortened term for a fake Instagram account, is typically used to post more personal and candid information for close friends.

2.4 Qualitative Design

In the Creswell (2013) book, the author discusses five qualitative approaches, although others exists, that can be used when conducting research: narrative research, grounded theory, ethnographic research, case study, and phenomenology. This study used a phenomenological approach to analyze the semi-structured individual interviews with participants. A

phenomenological approach fits the goal of this study since it focuses on understanding what participants have in common as they experience the phenomenon of interest, in this case, the emotional experiences and outcomes of using Instagram.

Phenomenology draws substantively from the work of German philosopher, Edmund Husserl (Creswell, 2013). There is a strong relationship between phenomenology and constructivism, which focuses on how the world appears to a particular person based on their experiences (Chiari & Nuzzo, 1996). Phenomenology strives to understand these views through the eyes of the participants. There are two types of phenomenology: hermeneutic and transcendental. Hermeneutic phenomenology is an interpretive process relying on the researcher's interpretation of the phenomenon experienced by participants (van Manen, 1990). On the other hand, transcendental phenomenology focuses solely on the participants' description of their experiences rather than the researcher's interpretation (Moustakas, 1994). Transcendental phenomenology allows researchers to observe their data from a *fresh* perspective (for examples, see Buser et al., 2016; Moerer-Urdahl & Creswell, 2004; Ortiz-Dowling et al., 2019). The current study adopted transcendental phenomenology because it encourages a less biased perspective from the research team as we aimed to prioritize the participants' point of view when describing their Instagram experiences.

Transcendental phenomenology was used to examine participants' verbal descriptions of their experiences after using Instagram. Semi-structured one-on-one interviews were conducted to: (1) understand participants' thoughts and emotions during their Instagram use and (2) their reasoning about their thoughts and emotions while using Instagram.

An important concept that arises with transcendental phenomenology is the idea of *epoche* (or bracketing). *Epoche* is when researchers actively try to acknowledge and then set

aside their own experiences and interpretations so that they can have a neutral or fresh perspective on the meanings constructed by the participants (Creswell, 2013). Even though this is a positive step towards more valid research interpretations, to some degree the pre-existing experiences of researchers can influence their interpretations of the participants' experiences. For that reason, it is important to describe the background and acknowledge potential biases of each member of the research team.

2.4.1 Role of Researchers

The research team consisted of a graduate student and seven undergraduate research assistants (RAs). The graduate student who is also the main researcher of the study identifies as a Malaysian-Indian male. He is a 30-year old doctoral student earning his PhD in Social Psychology. He has owned an Instagram account for 9 years (2012). He is interested in the prevalence of associating Instagram with mental health concerns. However, he believes the root cause behind the potential negative effects of social media are due to the specific interpretation of users while on Instagram rather than due to the platform itself. This is why he is using a phenomenological approach to better understand the interpretation of participants.

RA 1 identifies as an Asian-Hispanic female. She is 21-years old and currently a junior double majoring in Psychology and Communications. She has had an Instagram account for 9 years (2012). She believes the platform has its advantages and disadvantages depending on how conscious users are of its effects. She describes her personal experience with Instagram as a learning process where she becomes more self-aware of how certain Instagram content affects her, so she follows accounts that she finds beneficial to her mental health like those that are aesthetically pleasing, funny, and informative.

RA 2 identifies as a White female. She is 21-years old and currently a senior majoring in Psychology. She has had an Instagram account for 8 years (2013). She believes that Instagram is a positive platform when you follow people who inspire you or make you happy. Instagram can be perceived negatively if you are spending a lot of time on the Explore page and following accounts that make you feel bad about yourself.

RA 3 identifies as a White female. She is 20 years old and she is currently a junior. She is majoring in Kinesiology. She has owned an Instagram account for 8 years (2013). She believes that Instagram is a creative outlet for many individuals who can also use the application to form connections with creators whose content they find inspiring.

RA 4 identifies as a White male. He is 19 years old and is currently a sophomore majoring in Psychology. He had an Instagram account for about a year before he deleted it 6 years ago. He believes that Instagram creates superficial tendencies and promotes a comparative environment that can be toxic to peoples' mental health.

RA 5 identifies as a Black female. She is 23-years old and is currently a senior double majoring in Psychology and Criminology. She has had an Instagram account for 8 years (2013). She believes that the lack of emphasis on words and conversation throughout the platform produces a disconnect between the user and content viewed. She believes that this disconnect leads to users attempting to create their own meaning behind the content they see by comparing it to their own lives and thus bringing about a negative experience if the content viewed surpasses, or outshines the user’s day-to-day life.

RA 6 identifies as a Mexican-American female. She is 20 years old and majoring in Psychology. She does not have an Instagram account. She believes that while Instagram can be a

good way to connect and share with others, it can also contribute to users becoming self-conscious if they regularly compare themselves to the content they view.

RA 7 identifies as a White female. She is 20-years old and is a junior double majoring in Psychology and Criminology. She has had an Instagram account for 8 years (2013). She believes that Instagram is a great way for people to stay in contact with friends and family, but that it can also create a negative experience for people depending on the content they view. She follows accounts that revolve around things she is interested in and avoids those that don't.

In conclusion, it is necessary to maintain the transcendental phenomenological approach through *epoche* so that the emphasis of the research is on capturing the experiences of participants rather than being influenced by the previous experiences of the researcher (Creswell, 2013; Giorgi, 2009). The transparency regarding the researchers' thoughts and experiences with Instagram will allow the reader to determine whether the researchers focused on describing the participants' experiences, rather than their own.

2.5 Procedure

Undergraduate students were recruited using advertisements (e.g., flyers) and recruitment emails. Recruitment emails were sent to student organizations and undergraduate classes (with the permission of respective instructors). The study was conducted online via the Zoom platform. To be eligible to participate, participants had to be 18 years of age or older, be a registered undergraduate student, have an active Instagram account, and have the Zoom application downloaded on their mobile device before the study. In the recruitment materials, participants were reminded not to use their Instagram account the day of the study until they met the experimenter. This was to ensure that there was sufficient new content to view on the participants' Instagram Feed during the study session.

Once a study session was scheduled, the experimenter emailed participants a link to join a Zoom video call. At the beginning of the study session, the experimenter sent the consent form to participants via a link in the chat feature of Zoom. All documents (e.g., consent form, debriefing form) and questionnaires (pretest, posttest, and demographic questionnaire) were shared with participants through the chat feature using the survey platform, Qualtrics. In addition, the consent form and debriefing form were also emailed to participants for their record. Next, the experimenter went over the consent form together with the participant. Throughout the process, participants were encouraged to ask questions. Participants were told that they are involved in an experiment investigating the way they use the social networking site, Instagram. The experimenter explained the steps of the study to the participant including how their 10-minute Instagram use will be recorded and then viewed together with the experimenter. Once the experimenter and participant went over the consent form together, participants were asked to indicate in their consent forms if they agree to participate in the study. Participants clicked "Yes" to indicate their agreement to participate in the study.

The experimenter informed participants that in case they have more than one Instagram account, participants should use the one that they typically spend the most time on. Next, the experimenter asked the participants to share their screen with the experimenter. Participants were then requested to open their Instagram account of choice, click the "People" icon and then click "Your Activity". This is to double check that participants complied with the inclusion criteria of the study of not accessing Instagram the day of the study. For participants who accessed Instagram on the day of the study (this will show up as using Instagram for more than 1 minute), the experimenter ended the study session and informed the participants that they did not meet the inclusion criteria of the study and will no longer be allowed to proceed. These participants were

thanked for their time. Participants who did not access Instagram that day based on the time stamp on the "Your Activity" page (this will show up as using Instagram for just 1 minute) continued in the study. The experimenter then asked the participants to stop sharing their screen. Participants that were eligible to continue were given pretest measures to complete. After the pretest measures were completed, the experimenter notified participants that their Instagram use (10 minutes) will be recorded with the purpose of having a semi-structured interview to discuss their Instagram usage. Participants were reminded that at the end of the study, the video recording of their Instagram usage will be deleted.

Participants were then randomly assigned into either the treatment condition (reappraisal) or the control condition. Based on their assigned condition, participants were sent a link to watch a YouTube video. Next, participants were asked to share their screen with the experimenter again. Once the experimenter could see the participants' screen, participants were asked to use Instagram. To maintain experimental realism, participants' usage of Instagram was not constrained. Participants were instructed to use their Instagram account for a total of 10 minutes. Participants were reminded that any non-Instagram related use will result in their data being excluded. The experimenter suggested to participants that they could turn off notifications for other applications that might potentially distract them during their Instagram use for the study. Additionally, participants were recommended to reject or ignore any phone calls or text messages that they may receive while participating in the study.

To record the participants Instagram usage, the experimenter opened up the QuickTime Player (or equivalent) application in their device. The experimenter clicked "New Screen Recording", which allowed the experimenter to select a frame of their screen to record. This is when the experimenter selected the frame depicting participants' Instagram usage. Once the

experimenter started the QuickTime Player recording, the experimenter switched off their camera while participants used Instagram for 10 minutes. Participants were informed that the experimenter would not observe participants' Instagram usage until it was time to view the video recording together.

Once the 10 minutes was over, the experimenter stopped the recording on QuickTime Player and stopped participants from sharing their screen. Next, participants were given the Qualtrics link to the outcome measures (e.g., mood, self-esteem, and loneliness). Additionally, participants responded to the manipulation check item to assess the effectiveness of the reappraisal manipulation. Once participants completed their outcome measures, the study transitioned into the qualitative phase which was a semi-structured interview. Before proceeding, the experimenter informed the participants that the QuickTime Player screen recording would be used as a reference by both the experimenter and the participant during the interview. To do this, the experimenter shared their screen showing the QuickTime Player screen recording. The experimenter audio recorded the interview session using the QuickTime Player (or equivalent) application in their device. The audio recording was done with the purpose of saving the interview conversation between participant and experimenter for qualitative data analysis.

Once the interview session was over, the experimenter deleted the video recording of participants' Instagram usage. Participants were able to observe the experimenter's screen to see the Instagram video recording being deleted. The experimenter then stopped sharing their screen. Participants were sent a demographic questionnaire via the chat feature. Next, participants were sent a debriefing form (also emailed). The experimenter went through the debriefing process with the participant. Participants were thanked for their time, and reminded that their personal data and identity would not be shared with anyone, but the research team. Each participant was

compensated with a $7 Amazon gift card at the conclusion of the study. The experimenter emailed participants the relevant information to claim their compensation once the study ended. The full study session script used as guidance by the experimenters is available in Appendix H.

2.6 Pilot Study

A pilot study was conducted using the above procedures to assess the efficacy of the video manipulation and the feasibility of the study as a whole.[5] Forty-four participants were recruited (*M* = 19.9 years old; 33 females, 9 males, 1 non-binary, 1 did not specify). The racial and ethnic composition of the pilot study participants were 18 South Asian/South Asian Americans, 10 White/European Americans, 8 Latinx/Hispanic Americans, 3 Middle Eastern/Arab Americans, 2 East Asian/East Asian Americans, 2 identified as 'Other', and 1 Black/African American.

[5] According to Hertzog (2008), at least 40 participants (20 per condition) is required to assess the efficacy of pilot study interventions.

3. RESULTS

3.1 Pilot Study

Manipulation Check. To examine the efficacy of the reappraisal manipulation, participants were asked the following two questions at the end of the posttest, "When I wanted to feel a more positive emotion (such as happiness or amusement), I changed what I was thinking about" and "When I wanted to feel less negative emotion (such as sadness or anger), I changed what I was thinking about". Based on the composite score combining both manipulation check items, the treatment group scored higher ($M = 4.23$, $SD = 1.50$) compared to the control group ($M = 3.77$, $SD = 1.40$). The difference was not significant ($p = .31$), but the effect size was small-to-medium, $d = .31$.

Next, each manipulation check item was examined separately. While there were no statistically significant differences between condition for either item ($ps > .05$), the focus was on the direction of the difference and the effect size. For the first item, "When I wanted to feel a more positive emotion (such as happiness or amusement), I changed what I was thinking about", the treatment group scored higher ($M = 4.18$, $SD = 1.71$) than the control group ($M = 3.91$, $SD = 1.57$), $d = .17$. For the second item, "When I wanted to feel less negative emotion (such as sadness or anger), I changed what I was thinking about", the treatment group scored higher ($M = 4.27$, $SD = 1.61$) than the control group ($M = 3.64$, $SD = 1.50$), $d = .41$.

Based on the composite score, participants' overall level of reappraisal was higher in the treatment group, $d = .31$. As described above, there was a larger effect size in the second manipulation check item which focused on reappraisal to reduce negative emotions.

Since there is sizable evidence of individuals experiencing negative psychological effects while using social media (Appel et al., 2015; Beyens et al., 2016; Chou & Edge, 2012; Hayes et al.,

2015; Kross et al., 2013; Lup et al., 2015; Song et al., 2014; Steers et al., 2014; Utz et al., 2015; Yang, 2016), it is not surprising that participants who were exposed to the treatment condition were more likely to report using reappraisal to feel less negative emotions rather than feel more positive emotions. In this case, it is possible that the treatment condition acted as a psychological buffer that helped participants reframe their thoughts to feel less worse (negative) while using Instagram.

Mood. A mixed ANOVA with condition (treatment vs. control) as a between-subjects variable and time (pretest, posttest) as a within-subjects variable revealed no main effect of condition. On average, participants scored similarly in the treatment ($M = 44.60$, $SE = 1.18$) and control conditions ($M = 47.10$, $SE = 1.18$), $F(1,42) = 2.24$, $p = .14$. There was a main effect of time such that participants' self-reported mood was more positive at posttest ($M = 46.80$, $SE = .90$) compared to pretest ($M = 44.90$, $SE = .90$), $F(1,42) = 8.61$, $p = .005$, $\eta^2_G = .03$. There was a marginally significant interaction between condition and time, $F(1,42) = 3.83$, $p = .057$, $\eta^2_G = .01$. Paired samples t-tests were conducted to test change in mood over time for each condition. For control participants, mood did not change from pretest ($M = 46.8$, $SE = .88$) to posttest ($M = 47.50$, $SE = 1.23$), $t(21) = -.73$, $p = .47$. However, for treatment participants, mood improved significantly from pretest ($M = 43.00$, $SE = 1.35$) to posttest ($M = 46.20$, $SE = 1.53$), $t(21) = .3.29$, $p = .003$, $d = .70$.

Self-esteem. A mixed ANOVA with condition (treatment vs. control) as a between-subjects variable and time (pretest, posttest) as a within-subjects variable showed a main effect of condition. On average, participants reported higher self-esteem scores in the control condition ($M = 3.68$, $SE = .12$) compared to the treatment condition ($M = 3.24$, $SE = .12$), $F(1,42) = 6.55$, $p = .01$, $\eta^2_G = .13$. There was a main effect of time such that participants' self-esteem scores were

higher at posttest (M = 3.53, SE = .09) compared to pretest (M = 3.39, SE = .09), $F(1,42)$ = 12.41, p = .0001, η^2_G = .01. There was no interaction between condition and time, $F(1,42)$ = .12, p = .73.

Loneliness. A mixed ANOVA with condition (treatment vs. control) as a between-subjects variable and time (pretest, posttest) as a within-subjects variable indicated a main effect of condition. On average, participants reported higher loneliness scores in the treatment condition (M = 2.14, SE = .11) compared to the control condition (M = 1.84.10, SE = .11), $F(1,42)$ = 4.06, p = .05, η^2_G = .09.There was no main effect of time. On average, participants' loneliness scores were similar at pretest (M = 1.99, SE = .08) compared to posttest (M = 1.99, SE = .08), $F(1,42)$ = .01, p = .92. There was no interaction between condition and time, $F(1,42)$ = .27, p = .61.

In the pilot study, despite the lack of significant findings with the manipulation check items, the composite score showed a small-to-medium effect size in which treatment participants reported using reappraisal more than control participants, d = .31. Looking specifically into the items, there was a greater effect size showing that participants in the treatment condition were more likely to reappraise to feel less negative emotions relative to the control participants, d = .41. Additionally, when investigating mood as a dependent variable, there was a significant effect when looking at the improvement of mood from pretest to posttest for the treatment participants with a relatively large effect size, d = .70. Taking into account the direction of the differences and the promising effect sizes from the manipulation check and mood as a dependent variable in a small sample, the reappraisal video manipulation was determined to be efficacious. The data collection process continued and the pilot data was incorporated into the final data set which is presented next.

3.2 Main Study: Quantitative

Three specific hypotheses were proposed: (1) Mood will improve more from pretest to posttest for the reappraisal participants compared to control participants. (2) Self-esteem scores will increase more from pretest to posttest for the reappraisal participants compared to control participants. (3) Loneliness score will decrease more from pretest to posttest for the reappraisal participants compared to control participants. An independent samples t-test was also conducted to test the manipulation check items. See Table I for means and standard deviations of dependent variables by time and condition. See Table II for correlations between pretest variables and covariates.

TABLE I
MEANS AND STANDARD DEVIATIONS OF DEPENDENT VARIABLES BY TIME AND CONDITION

	Pretest	Posttest
Mood	*M* (*SD*)	*M* (*SD*)
Treatment	44.80 (6.88)	47.30 (7.32)
Control	44.60 (6.47)	46.40 (6.67)
Self-esteem		
Treatment	3.38 (0.75)	3.50 (0.81)
Control	3.33 (0.70)	3.49 (0.72)
Loneliness		
Treatment	1.94 (0.59)	1.96 (0.60)
Control	1.95 (0.53)	1.96 (0.52)

TABLE II
CORRELATIONS BETWEEN PRETEST VARIABLES AND COVARIATES

	Pretest Mood	Pretest Self-esteem	Pretest Loneliness	SCO	Narcissism
Pretest Mood	—				
Pretest Self-esteem	0.597 ***	—			
Pretest Loneliness	-0.577 ***	-0.598 ***	—		
SCO	-0.285 ***	-0.453 ***	0.314 ***	—	
Narcissism	0.063	0.166 **	-0.072	0.043	—

Note. * p < .05, ** p < .01, *** p < .001

Manipulation Check. Based on the composite score combining both manipulation check items, there was no difference between the treatment group (M = 4.67, SD = 1.51) and the control group (M = 4.49, SD = 1.34), p = .31, d = .13. Each manipulation check item was then examined separately. For the first item, "When I wanted to feel a more positive emotion (such as happiness or amusement), I changed what I was thinking about", there was no difference between the treatment group (M = 4.72, SD = 1.63) and the control group (M = 4.52, SD = 1.51), p = .32, d = .13. For the second item, "When I wanted to feel less negative emotion (such as sadness or anger), I changed what I was thinking about", no differences were found between the treatment group (M = 4.63, SD = 1.71) than the control group (M = 4.46, SD = 1.47), p = .39, d = .11. Despite the treatment group scoring higher on both manipulation check items relative to the control group, none of the effects were statistically significant.

Mood. A mixed ANCOVA was conducted with condition (treatment vs. control) as a between-subjects variable and time (pretest, posttest) as a within-subjects variable whilst controlling for social comparison orientation (SCO) and narcissism. There were no main effects

of condition or time. Participants scored similarly in the treatment (M = 42.10, SE = 3.19) and control conditions (M = 41.50, SE = 3.18), $F(1,243) = .46$, $p = .50$. Participants scored similarly in the pretest (M = 40.70, SE = 3.16) and posttest (M = 42.90, SE = 3.16), $F(1,243) = .20$, $p = .65$. There was no interaction between condition and time, $F(1,243) = 1.24$ $p = .27$.

As for the control variables, SCO accounted for a significant amount of variance in mood, $F(1,243) = 18.72$, $p < .001$, and this relationship had a negative direction. In a subsequent model, SCO was tested as a moderator to determine if the effects of condition and time differed based on participants' SCO scores. SCO did not moderate the relationship between condition and mood, $F(1,242) = .48$, $p = .49$, and did not moderate the relationship between time and mood, $F(1,242) = 1.06$, $p = .31$. Narcissism did not account for a significant amount of variance in mood, $F(1,243) = 1.10$, $p = .30$. When the covariates were excluded from the analysis, there was a main effect of time such that participants had a more positive mood at posttest (M = 46.90, SE = .44) compared to pretest (M = 44.70, SE = .44), $F(1,243) = 50.79$, $p < .001$, $\eta^2_G = .03$. There was no main effect of condition and no interaction between condition and time.

Self-esteem. A mixed ANCOVA was conducted with condition (treatment vs. control) as a between-subjects variable and time (pretest, posttest) as a within-subjects variable whilst controlling for social comparison orientation (SCO) and narcissism. There was no main effect of condition. Participants scored similarly in the treatment (M = 2.17, SE = .33) and control conditions (M = 2.14, SE = .33), $F(1,243) = .10$, $p = .76$. There was a main effect of time such that participants' self-esteem scores were higher at posttest (M = 2.22, SE = .33) compared to pretest (M = 2.09, SE = .33), $F(1,243) = 4.31$, $p = .04$, $\eta^2_G = .001$. There was no interaction between condition and time, $F(1,243) = .42$, $p = .52$.

As for the control variables, SCO accounted for a significant amount of variance in self-esteem, $F(1,243) = 67.13$, $p < .001$, and this relationship had a negative direction. In a subsequent model, SCO was tested as a moderator to determine if the effects of condition and time differed based on participants' SCO scores. SCO did not moderate the relationship between condition and self-esteem, $F(1,242) = .04$, $p = .85$, and did not moderate the relationship between time and self-esteem, $F(1,242) < .001$, $p = .99$. Narcissism also accounted for a significant amount of variance in self-esteem, $F(1,243) = 8.04$, $p = .005$, and this relationship had a positive direction. Next, narcissism was tested as a moderator to determine if the effects of condition and time differed based on participants' narcissism scores. Narcissism did not moderate the relationship between condition and self-esteem, $F(1,242) = .35$, $p = .56$, and did not moderate the relationship between time and self-esteem, $F(1,242) = 3.24$, $p = .07$. When the covariates were excluded from the analysis, the pattern of results remained the same.

Loneliness. A mixed ANCOVA was conducted with condition (treatment vs. control) as a between-subjects variable and time (pretest, posttest) as a within-subjects variable whilst controlling for social comparison orientation (SCO) and narcissism. There were no main effects of condition or time. Participants scored similarly in the treatment ($M = 2.43$, $SE = .27$) and control conditions ($M = 2.44$, $SE = .26$), $F(1,243) = .008$, $p = .93$. Participants scored similarly in the pretest ($M = 2.42$, $SE = .26$) and posttest ($M = 2.44$, $SE = .26$), $F(1,243) = 1.47$, $p = .23$. There was no interaction between condition and time, $F(1,243) = .03$ $p = .85$.

SCO accounted for a significant amount of variance in loneliness scores, $F(1,243) = 32.41$, $p < .001$, and this relationship had a positive direction. In a subsequent model, SCO was tested as a moderator to determine if the effects of condition and time differed based on participants' SCO scores. SCO did not moderate the relationship between condition and

loneliness, $F(1,242) = 1.44$, $p = .23$, and did not moderate the relationship between time and loneliness, $F(1,242) = 1.23$, $p = .27$. Narcissism did not account for a significant amount of variance in loneliness scores, $F(1,243) = 1.88$, $p = .17$. When the covariates were excluded from the analysis, the pattern of results remained the same.

All the analyses were rerun separately for each semester to examine if there were any time differences. The pattern of results was the same for the Fall 2020 (n = 127) and Spring 2021 (n = 120) samples, with the exception that narcissism did not account for a significant amount of variance in self-esteem among the Fall 2020 participants, $F(1,123) = 2.90$, $p = .09$. [6]

Instagram Usage Tracking Form. Out of the 13 Instagram features that participants could access during their Instagram use (see Appendix G), only one feature had systematic variability between participants in the treatment and control conditions. Specifically, a chi-square test of independence revealed that there was variation in the use of the "Like" feature, $\chi^2(1, 247) = 5.90$, $p = .02$. Participants in the treatment condition used the "Like" feature more frequently than participants in the control condition. This systematic variability may not be relevant due to the study conditions (treatment vs. control) not having an effect on the dependent variables (mood, self-esteem, and loneliness).

3.3 Main Study: Qualitative

This study used a transcendental phenomenological approach to understand the emotional experiences and emotional outcomes of using Instagram. The experimenters conducted semi-structured one-on-one interviews with participants while watching the video recording of their Instagram use. The interview and content shared by the participants during the interview were

[6] The analyses were conducted again excluding participants who responded in the demographic questionnaire that their Instagram use during the study was not typical. The pattern of results was the same for this subset and the full dataset.

recorded and transcribed. The transcriptions were uploaded to the qualitative data analysis software, ATLAS.ti.

After completing the transcription for all participants ($N = 247$), the data analysis and coding was performed by the research team on a subset of the participant transcripts. In phenomenology qualitative analysis, researchers are recommended to interview between 5 and 25 individuals who have experienced the phenomena of interest (Polkinghorne, 1989; Creswell, 2013). Based on that recommendation, 50 interview transcripts (25 per condition, reappraisal and control) were randomly selected for coding. Since the research team was composed of five interviewers, 10 transcripts (5 reappraisal and 5 control) were selected per interviewer to ensure equal number of transcripts were analyzed from each interviewer.

The 50 participants in the randomly selected group had an average age of 20.10 years old (44 females, 5 males, 1 chose not to respond). The racial and ethnic composition of the 50 participants were 17 South Asian/South Asian American, 10 Latinx/Hispanic American, 8 White/European American, 8 East Asian/East Asian American, 4 Middle Eastern/Arab American, 2 identified as 'Other', and 1 Black/African American. In terms of year in college, there were 13 freshmen, 9 sophomores, 14 juniors, and 14 seniors.

Three research assistants initially read through 15 of the 50 transcripts to identify codes and descriptions for the creation of a codebook draft. The main researcher revised the codebook to eliminate redundant information and rearranged the structure of the codes in the form of semantic domains. In the context of Atlas.ti, semantic domains refer to the subcategorization of codes. For example, a category could be *positive emotions* and two subcategories within *positive emotions* could be *happy for others* and *feeling connected*. Based on the recommendation of the Atlas.ti manual to calculate intercoder agreement, it is important that there are no overlapping

subcategories from the same domain when selecting codes on a transcript. In this case, two coders should not code the same word or sentence with both the subcategories *happy for others* and *feeling connected*. A coder can use more than one type of subcategory on a word or text as long as it is not within the same semantic domain (e.g., *positive emotions*). At the end of this iterative process, there were 11 categories or semantic domains with 34 different codes. See Appendix J for the codebook.

Two study research assistants who were not involved in interviewing participants were selected as coders. Based on the revised codebook, these coders read through all 50 transcripts and coded significant statements, sentences, or quotes reflecting the emotional experiences of participants while using Instagram (Creswell, 2013; Miles et al., 2014). This step is called *horizonalization* (Moustakas, 1994). Throughout the coding process, the coders incorporated memos into the transcripts. Memos are reflective notes taken by researchers to write down any ideas that could help make connections among the data (e.g., similarities and differences among the data; Miles & Huberman, 1994; Maxwell, 2012). During the coding process, coders were blinded to participants' condition (treatment vs. control). The intercoder agreement score was $\alpha = .90$ (Krippendorff, 2004).

After that, the two coders developed clusters of meaning by combining these significant statements into themes or "meaning units" (Creswell, 2013). Based on these themes or "meaning units," the research team identified "what the participants in the study experienced. This is called a *textural description* of the participants' experiences" (Creswell, 2013, p. 193). Additionally, the research team identified "how the experience happened. This is called *structural description* of their experiences" (Creswell, 2013, p. 194). In the end, seven themes were identified. These

themes were: positive emotion, negative emotion, social comparison, self-esteem, reappraisal, awareness of highlight reel, and attention to likes, comments, and followers.

3.3.1 Themes

Positive Emotion

Across both conditions, participants shared positive emotional experiences during their Instagram use. The type of content that typically led to positive emotions (e.g., feeling happy or excited) included pictures or videos about participants' hobbies (e.g., cooking), funny content (e.g., memes), content about animals, heartwarming videos, and inspirational content (e.g., seeing successful individuals). Some participants reported that using Instagram was a nice form of stress relief when used to either take a break from work or as a reward for working. There was a pattern of participants who reported how content that validated their emotions or identity made them very happy.

Gaby[7]: She reminds me to still enjoy, be happy that I'm alive.

Gaby was referring to a post by a woman who encouraged others to feel confident with their bodies. Another element of validation was related to participants feeling a sense of representation by the content on Instagram. Representation included cultural and sexual identities. For example, when one participant saw a post about many Asian individuals going through similar challenges in the United States, she said,

It made me feel more connected with my background (Fernie).

An example of sexual identity representation, Ella stated how she enjoyed seeing pictures of same-sex weddings because she is in a situation where her family members are not aware of her being in a same-sex relationship.

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[7] All participant names are pseudonyms used to protect their confidentiality.

In conclusion, positive emotions were described by participants when they found the content to be engaging, relatable and a form of stress relief. Additionally, content that validated the emotions or identity of participants were mentioned as examples of something that made them feel better during their Instagram use.

Negative Emotion

Regardless of condition, participants expressed negative emotions when describing parts of their Instagram use. The two common descriptions used by participants were the fear of missing out (FOMO) and feeling bored or annoyed. Participants would occasionally use the term "FOMO" when describing the idea of feeling left out. For instance, when participants saw the people they follow on Instagram were still gathering despite the ongoing pandemic while participants remained at home, they reported feeling sad. Hannah said,

> *Have a feeling of…FOMO…it kind of makes me regret not going out with them (Hannah).*

There were occasions where participants felt uncomfortable by others' behavior during the ongoing pandemic such as traveling or going to parties. For example, one participant said the following in reference to how some individuals on her Instagram account were gathering with large groups of friends at parties despite the pandemic,

> *Not angry but like, a little disturbed (Sydney).*

Participants reported feeling bored or annoyed, which typically occurred when they saw repeating content on their Instagram Feed, or the Explore feature. They would lose interest due to the redundant nature of the material. It is worth mentioning that some participants noted local and world events that made them feel negative emotions. Examples of events include the military

coup in Myanmar, the power shortage in Texas, and the anniversary of a college student's death on campus.

Overall, participants described negative emotions when they felt left out, bored, and annoyed. In the context of the pandemic, examples of negative emotions experienced included participants feeling FOMO due not being able to socialize with others and being uncomfortable with the lack of safety measures taken by certain individuals as seen on their Instagram content.

Social Comparison

Social comparison is when participants compared themselves or their life circumstances to other people on their Instagram account. This comparison can include experiences (e.g., traveling), physical appearance (e.g., beautiful models), and accomplishments (e.g., graduating). Participants' descriptions of social comparison were categorized into three potential levels, social comparison without any positive or negative emotions attached, positive social comparison, and negative social comparison. Occasionally, participants would explain feelings or instances of social comparison without explicitly describing an emotional experience attached to the comparison. For example, Estelle said,

I feel like they're better than me, it doesn't make me feel like bad or anything (Estelle).

It was uncommon for participants to describe social comparison in a positive light. As an example, a participant saw a post from a woman who is extremely happy with her partner, and the participant commented that she hopes to be as happy as that woman in the future. However, most participants who noted social comparisons attached negative feelings when describing posts about other people. Most of the social comparison references were made in the context of the physical appearances of other females. These references were only made by participants who identified as female. Below are quotes from two different participants,

How come my photos don't look like this or she has such nice clothes. I can't afford those kinds of clothes, she is so lucky (Naomi).

She has all the resources that can help her look like this. She has an advantage, and I shouldn't feel bad about myself, but it's annoying that I want to look better than what I do now (Alexa).

To conclude, social comparison tended to be described with negative experiences and the type of social comparison frequently shared by participants focused on the physical looks of other individuals they followed on Instagram such as friends, models, or celebrities.

Self-esteem

During the interview process, participants may not explicitly use the term self-esteem but could describe feeling more positive or negative about themselves after watching certain content and this was coded as self-esteem. Below are quotes from two participants,

I feel like it very subconsciously affects you. It's not something that you're aware of.

Because I think all of us are pretty judgmental about how we look (Sophia).

And going on Instagram, it makes me feel really bad about myself (Tiffany).

In the coding process, there were overlaps between self-esteem and social comparison. This means that certain participant statements could receive both a social comparison and a self-esteem code. In the qualitative analysis of this study, the self-esteem code was applied only when participants specifically described their self-worth being affected. Within the context of self-esteem, there were also examples on the physical looks of others leading to a lower self-esteem for participants. Crystal and Veronica said,

> *Instagram and other social media does have an impact on people's well-being. I think what cause a lot of my insecurity and eating disorder is social media and how women are praised for having nice bodies…so I think it definitely does have an effect (Crystal).*
>
> *I feel like I see a lot of people that I know, and I start to get self-conscious about the way I look…I stick to looking at memes so I can avoid feeling like crap afterwards (Veronica).*

Veronica's quote was interesting because it reflected a balancing behavior where participants might intentionally seek Instagram content that makes them feel better about themselves to counteract the potential toll on self-esteem from other Instagram content that makes them feel bad. The quote below is another example of this balancing behavior.

> *That's why like, I follow a lot of that and like just a lot of stuff that just like, makes me smile so I won't have to feel bad about myself every time I go on Instagram (Agnes).*

In the example above, Agnes was referring to how she spends time on self-care pages which focus on mental and physical well-being. Another participant, Priyanka described the general steps she takes to improve the environment of her Instagram account to feel better about herself.

> *So these people be like looking perfect. And it kind of like, it really got me down my self-esteem sometimes. So I think I figured out that I have control over, like, what pops up in my feed, and I don't want to be feeling these negative emotions. So I, I started like, cleaning out my Explore page by like putting not interested on all the things that didn't make me feel good (Priyanka).*

For context, Instagram users can select the option of "Not interested" on posts or videos that appear in the Explore section with the goal of the Instagram algorithm then reducing that particular type of content on the user's Explore page.

To sum up, there were overlaps when participants were describing self-esteem and social comparison. For example, the physical appearance of other individuals appears to be a point of social comparison and was also described as taking a toll on one's self-esteem. However, the self-esteem code was applied when participants emphasized how the content or experience on Instagram had a negative consequence on their self-worth. Lastly, there were instances of participants demonstrating balancing behavior where they would either view content that made them feel better or change the settings of their Instagram environment to offset the negative consequences of certain Instagram content on participants' self-esteem.

Reappraisal

Reappraisal is when participants described changing their interpretation or perspective to feel better about a situation. Participants were not specific at describing whether they were upregulating positive emotions or downregulating negative emotions. Only five participants explicitly described reappraising their emotions during the Instagram viewing task with four of them being in the treatment condition. These reappraisal descriptions were more reflective rather than being aimed at specific content they were viewing. For example, Nicole in the treatment condition said,

> *I've had discussions and seeing people that like really, like, try to compare and like, you see, like, everyone all the positive all the time. So like, maybe like there's something going on in their lives, but like, we know, that everyone only has, like, they show that they have that sort of picture that they want to show to the world. So I try to keep that in mind and not like, you know, take too much (Nicole).*

Similarly, Brianna in the control group expressed that despite many individuals showing a "perfect life" on Instagram, she reminds herself that there is a reality behind the scenes especially when individuals share the sacrifices they had to make along the way.

Ultimately, even if participants reappraised their emotions, they might not have explicitly reported this. As mentioned, four participants described reappraising their emotions in the treatment group compared to one participant in the control group.

Awareness of Highlight Reel

In the context of social networking sites, the term "highlight reel" refers to users only sharing the best moments of their lives. Across conditions, participants described their awareness of how Instagram is a place for highlight reels which could have negative emotional consequences for others. Below are quotes from two different participants,

> *I realized that people's lives aren't exactly how we show them on Instagram. I can't expect myself to live by the highlights of other people (Manny).*
>
> *Seeing people only sharing the good times in their life has a negative impact...No one's going to share bad times of their life (Alexis).*

Some participants even mentioned the highlight reel as a concern when referring to celebrities on Instagram. Richie and Shannon said,

> *They'll show you like Kylie Jenner, her amazing body and then there will be a post saying she has got surgeries done. There's no real way to see that first (Richie).*
>
> *I think it's more detrimental when people follow, like celebrities…their profile is kind of just a façade (Shannon).*

In conclusion, some participants described their awareness of Instagram as a place

where individuals including celebrities only share their best moments and this can have a negative impact on Instagram users.

Attention to Likes, Comments, and Followers

At the earlier process of reading through the transcripts, the coders noticed descriptions by participants about paying attention to the number of likes or comments received. This includes the participants mentioning their own attention to these details or participants describing how other people on Instagram cared about likes or comments. For example, Janiya said,

If I post, I do care about likes, comments, and people commenting on my stuff (Janiya).

Demetria mentioned how she likes leaving comments on other people's posts so that she will receive comments in return on her future posts. Participants were also concerned about the number of followers they have. Miranda said that she cares about the number of followers she has and that she unfollows people that do not follow her back. Miranda added,

I also don't like following more people than people that follow me (Miranda).

Some participants describe this as the "follower-to-following ratio". This is the perception that it is better to have more individuals following their account versus the number of accounts followed by the participant.

Many of the participants who discussed likes, comments, and followers described it as a problematic preoccupation. Interestingly, these participants mentioned that other people on Instagram were the ones who were worried about likes, comments, and followers but not the participant themselves. For instance, Glen and Sammy said,

Some people are very particular about likes, how many likes, who follows you and who doesn't (Glen).

Other people, you know, likes, maybe really important, like, oh, my video only got 176 likes. Whereas for me, I don't really care (Sammy).

A couple of participants mentioned how they used to care a lot about likes, comments, and followers but that is not something they pay too much attention to these days.

In summary, the number of likes, comments, and followers are components of the Instagram experience that some participants describe paying attention to. However, participants were more likely to state that other people on Instagram are preoccupied about number of likes, comments, and followers rather than themselves.

3.3.2 Essence

The end goal of the qualitative analysis is to produce a conclusion paragraph called the essence (Creswell, 2013). For this study, the essence is a composite description of the overall emotional experiences of participants on Instagram based on the combination of both the textural (what they experienced) and structural descriptions of the participants' experiences (how they experienced it in terms of context or situations; Creswell, 2013).

Participants felt positive emotions when consuming content that was relatable, funny or entertaining, and validating their emotions. The negative emotions that participants experienced were related to feelings of FOMO and boredom from redundant content. Many participants described social comparison in a negative manner and the most frequent comparisons were made by females to other females, focused mostly on physical looks. In a similar vein, participants shared how observing the physical appearances of others can take a toll on one's self-esteem. Knowing that using Instagram can be stressful, participants may intentionally consume content that improves how they feel about themselves to counteract the disadvantages. Participants were aware that Instagram is a place for highlight reels. The use of Instagram as a highlight reel by

other individuals including celebrities can be detrimental to participants since most Instagram users avoid sharing their negative experiences. In terms of likes, comments, and followers, some participants mentioned being self-conscious and tracking these details like a social value calculator. However, most participants stated that the attention to likes, comments, and followers were concerns that were predominantly experienced by other people on Instagram relative to the participants themselves.

The participants in the treatment condition provided more details when speaking about emotional experiences. Additionally, treatment participants elaborated more about social comparison relative to the control participants. This could be due to a priming effect from the more emotion-related content in the treatment (reappraisal) video compared to the control video. Only five participants explicitly talked about reappraising their emotions, with four of them being in the treatment condition.

4. DISCUSSION

This mixed-methods study examined the effects of a reappraisal prevention on the emotional outcomes of Instagram users. In the quantitative section, three specific hypotheses were proposed: (1) Mood will improve more from pretest to posttest for the reappraisal participants compared to control participants. (2) Self-esteem scores will increase more from pretest to posttest for the reappraisal participants compared to control participants. (3) Loneliness scores will decrease more from pretest to posttest for the reappraisal participants compared to control participants. Despite the predictions, none of the three hypotheses were supported. As a control variable, SCO accounted for a significant amount of variance in all three dependent variables, while narcissism accounted for a significant amount of variance in self-esteem. To better understand the emotional experiences of Instagram users, qualitative semi-structured interviews were conducted. Participants described their experience, including emotional experiences, after using Instagram. These in-depth experiences were synthesized into seven themes using transcendental phenomenology, providing more context to how participants felt and why they felt that way. The next sections will discuss the reappraisal video manipulation, followed by findings based on each dependent variable.

Reappraisal Video Manipulation. Participants in the treatment condition were shown a video with a reappraisal message aimed at normalizing the emotions that participants might feel during their Instagram use, while participants in the control condition were shown a video with a generic message about the history of Instagram as a company. The reappraisal video manipulation was effective in the pilot study, based on the size of the group differences on the manipulation check items. Additionally, there was a significant effect on mood, such that mood scores improved for treatment participants from pretest to posttest but there was no change for

participants in the control group. It is worth mentioning that the effect size in the pilot study was medium in size, but this could have been an overestimation due to the limitation of a smaller sample size. In the full sample, the manipulation check items showed no significant differences between the treatment and control condition. This together with the lack of effects on the dependent variables reflects that the reappraisal video manipulation needed to be stronger to affect participants.

An understandable criticism could be the lack of constraints in regard to the type of content that participants were able to consume during their 10-minute Instagram use. For example, previous work with a reappraisal manipulation in an educational context was done in the form of instructions given to students before they took the same type of exam (Jamieson et al., 2010). As a reminder, participants' usage of Instagram in the current study was not constrained (e.g., participants were able to look at any features within their Instagram account) to maintain experimental realism. Limiting participants' usage to a certain feature would have been unrealistic and that could have been problematic since participants might have been forced into an artificial environment of using a particular feature that they normally do not use.

Another possible explanation is that a reappraisal instruction does not equate reappraisal success. Work by Ford et al. (2017) showed that the frequency of using reappraisal may not translate to actual success at reappraising emotions. From this standpoint, the potential limitations in the current study were that participants were only exposed to a single instruction to reappraise before using Instagram for 10-minutes. Additionally, there was no training or test period ahead of time to confirm that participants were successfully reappraising their emotions aside from the manipulation check at the end of the study period.

Mood. Past research has highlighted negative relationships between time spent on social networking sites (e.g., Facebook) and mood (Sagioglou & Greitemeyer, 2014). Many studies have investigated the connection between Instagram and mood with a focus on female body image concerns (Brown & Tiggemann, 2016; Cohen et al., 2019; Rounds & Stutts, 2020; Slater et al., 2017; Slater et al., 2019). For instance, exposure to body positive content or images were shown to improve mood relative to thin-ideal images (Cohen et al., 2019; Slater et al., 2017).

The pilot findings in the current study showed that the treatment participants' mood scores improved significantly from pretest to posttest, but there was no change from pretest to posttest for control participants. However, this finding was not replicated with the full data set. Mood is a variable that would be expected to change more quickly relative to the other dependent variables in the study (e.g., self-esteem and loneliness), but in this case there was no significant change or improvement in mood. Some findings from the qualitative analysis could help interpret the lack of effect with mood. There were a number of local and global events leading to specific Instagram content that could have affected participants' emotions. For example, this study was conducted throughout the COVID-19 pandemic. During that period, there were also many social and political issues (e.g., Black Lives Matter movement, U.S. presidential election), and these events carried high intensity emotions that could have reduced the salience of the reappraisal manipulation video. Qualitative findings from the current study illustrate that participants benefited from content on their Instagram feed that they identified as relatable and emotionally validating. Participants also reported having negative experiences on Instagram largely due to the fear of missing out. This fear could have been exaggerated for some participants who completed the study during periods of the pandemic where stay at home orders

were in place. These types of external events may have influenced participants' mood and experiences during the study.

Self-esteem. Previous work has shown a negative relationship between time spent on Facebook and self-esteem (Kalpidou et al., 2011). There has been limited work that has examined the association between Instagram and self-esteem. One study found that self-esteem was a moderator between receiving likes and Problematic Instagram Use (Martinez-Pecino & Garcia-Gavilán, 2019). Specifically, the positive relationship between receiving likes and Problematic Instagram Use (PIU) was reduced for participants with higher self-esteem relative to participants with lower self-esteem, reflecting higher self-esteem as a protective factor (Martinez-Pecino & Garcia-Gavilán, 2019). Taking into account that the reappraisal manipulation did not work, it was surprising to find a main effect of time on self-esteem showing that regardless of condition, participants had higher self-esteem scores after their Instagram use. One of the findings from the qualitative analysis could help explain the main effect of time on self-esteem. Quotes by participants showed that they were aware of Instagram taking a toll on their self-esteem. Due to this knowledge, participants might have altered their content consumption by choosing to consume content that would make themselves feel better during their Instagram use.

Loneliness. There have been mixed findings in the relationship between Instagram and loneliness. Instagram usage has been associated with lower scores of loneliness (Pittman, 2015; Pittman & Reich, 2016), but Yang (2016) showed that different types of Instagram usage was associated with different levels of loneliness. Specifically, Yang (2016) found that Instagram *interaction* (communicating directly with other people) and *browsing* (checking the home page and other's profiles) were associated with lower loneliness scores while *broadcasting* (sharing

information not directed to specific individuals) was associated with higher loneliness scores. The argument made by Yang (2016) was that broadcasting could be an indirect way for participants to seek attention, and the lack of response from others could make users feel disengaged. In the current study, participants might have been less likely to broadcast information (i.e., post photos and videos) due to the knowledge of having their Instagram usage recorded. This is supported by the Instagram usage tracking procedure, which showed that only 15 participants in the whole study (6%) posted some sort of information during their 10-minute usage. One possible explanation is that participants in this study were less likely to feel lonely because they engaged in broadcasting information less often. However, loneliness scores in general still did not improve across both conditions. Within the qualitative analysis, content that would be coded as loneliness was not mentioned by participants. Despite the study being conducted during a global pandemic where it would be normal to expect participants to have greater loneliness scores, this did not appear to be a significant problem potentially due to participants being aware that everyone was going through a similar situation. Additionally, it could be that the time between the pretest and posttest was too short to influence one's loneliness scores.

4.1 Implications and Future Directions

The results in this study suggest several avenues for future work. This study was a mixed-methods approach that examined the implementation of a theoretically driven experimental prevention to improve the emotional outcomes of Instagram users. Reappraisal was selected as an emotion regulation strategy in the prevention approach based on the evidence of its benefits at improving positive emotions and reducing negative emotions in various settings (Brady et al., 2018; Giuliani et al., 2008; Jamieson et al., 2010; Jamieson et al., 2012; Jamieson et al., 2016;

Quoidbach et al., 2015). The reappraisal manipulation utilized in the current study was created based on specific strategies utilized to normalize emotions (Webb et al., 2012) that Instagram users may feel.

Given the insignificant findings of the theoretically driven manipulation, future manipulations may require greater strength to effectively influence emotional outcomes after prescriptive or time limited Instagram usage. Strengthening the manipulation may include a practice period and/or more frequent attempts at reappraisal. A training phase can also be incorporated to ensure that participants have practice using reappraisal as an emotion regulation strategy before engaging in the task. For example, to study the upregulation of positive emotions, Giuliani et al. (2008) trained their participants with contextualized examples to make sure that they were using reappraisal to either increase or decrease feelings of amusement after watching brief video clips. Likewise, the continuous exposure to emotional content may require sustained attempts to reappraise emotions. Future studies could provide messages that would encourage participants to reappraise repeatedly during the study task. However, it is important to note that reappraisal frequency does not equate reappraisal success (Ford et al., 2017) so adding a training phase could address this potential concern. Another area of future research is to test manipulations that span a longer amount of time relative to the video manipulation. Since there is the potential for emotionally strong Instagram content to reduce the saliency of the manipulation, future research can examine using longer video manipulations to test if this will impact participants' emotional experiences differently.

This mixed-methods study has highlighted the value of a qualitative approach to better understand the emotional experiences of Instagram users. Based on the quantitative findings alone, it may appear as though mood was not affected by participants' experiences on Instagram.

Interviewing provided a rich and deep understanding of the positive and negative emotions experienced by participants while engaged on Instagram. In the interviews, participants shared the specific type of content that either increased or decreased their mood. Examples of content that made participants happy were inspirational, humorous, or animal content, and experiences of FOMO made participants feel negative. These examples were also identified in a recent study (Shensa et al., 2021). Additionally, across the qualitative study themes like social comparison and self-esteem, participants described being negatively impacted by physical comparisons with other females on Instagram, specifically among female participants. Other qualitative research has found similar social comparison trends (Sharifi et al., 2016) and more recent qualitative investigations into Instagram have identified similar concerns in specific social media research regarding body image (Baker et al., 2019; Evens et al., 2021; Shensa et al., 2021). In addition, future qualitative research is needed to better understand steps to improve the emotional experiences of Instagram users. Some of the qualitative approaches used in research have relied on asking open-ended questions at the end of the study, interviewing participants to ask their thoughts about Instagram, or to create an artificial Instagram Feed for participants to view (Baker et al., 2019; Evens et al., 2021; Sharifi et al., 2016; Shensa et al., 2021). The current study is a unique contribution to the literature since participants were observed while using their own Instagram account in a more realistic environment. Furthermore, participants were interviewed by referring to their actual behavior on Instagram so this process reduced the discrepancy between what participants might think about their usage and what they actually did. Lastly, observing authentic Instagram experiences allowed us to identify contextually rich information such as the type of content that validates emotions as it relates to strengthening one's cultural or

sexual identity. Future qualitative researchers should aim to measure emotions as close as possible to the participants' experiences as demonstrated in the current study.

Additionally, without the qualitative interviews in the current study there would have been a lack of explanation for the increase in self-esteem scores after participants' Instagram use; this increase is contrary to previous research (Kalpidou et al., 2011). The qualitative data helped complement the unexpected quantitative self-esteem findings. Specifically, the phenomenological approach which involved identifying the textural (what they experienced) and structural (how they experienced it in terms of context, Creswell, 2013) descriptions provided suggestions for why their self-esteem may have improved. Asking participants directly about the context surrounding their emotional experiences can help fill gaps that might not be answered by quantitative findings alone.

Future studies may benefit from incorporating qualitative approaches where researchers are provided with the opportunity to immerse themselves in the participants' environment and experiences in addition to investigating quantitative research questions. Another compelling explanation discovered through the qualitative findings is that participants were aware of some psychological effects surrounding their Instagram use. This awareness was reflected by participants' description of phenomena such as social comparison, self-esteem, and fear of missing out. Additionally, participants described their awareness and attention to specific issues such as Instagram serving as a highlight reel and the concern that users may have about the number of likes, comments, and number of followers. This is a hint that future manipulations in the context of Instagram and other social networking sites need to consider going beyond normalizing experiences. For example, in the reappraisal manipulation video participants were told, "Since a lot of real life struggles and frustrations that we all go through are not shared

online, you should avoid being critical of yourself and comparing yourself to others." Participants in both conditions still described social comparison as a problem, which raises the question of whether the awareness of the problem is sufficient to make a difference in participants' emotional experiences.

In the context of Instagram use, future researchers should investigate other forms of strategies that could impact participants' emotional outcomes. The qualitative findings in this study have shown that different emotion regulation strategies such as situation selection and situation modification are already being used by participants while on Instagram (Gross, 1998a; Gross & Thompson, 2007). Situation selection is when actions are taken to increase or decrease the chances that someone will experience positive or negative emotions. For instance, participants who decide beforehand to view funny content (e.g., memes) are demonstrating a form of situation selection. Situation modification are steps taken to change the environment of a situation to revise its emotional impact. The balancing behavior that participants described by viewing content that makes them feel better after knowing the negative toll of certain Instagram content on their emotions is an example of situation modification. Reappraisal is cognitive strategy to regulate emotions (Gross & Thompson, 2007). It could be that cognitive strategies need to be supplemented with behavioral strategies to improve participants' emotional experiences. For instance, based on the qualitative findings in the current study, situation selection and situation modification appear to be behavioral steps that participants can take to improve their experiences. Future researchers should investigate what other behavioral strategies can help participants feel more positive or less negative emotions on Instagram. In addition to identifying precise behaviors that may help participants feel better, future researchers should pinpoint the reasons underlying negative-emotion-eliciting situations. For example, future work

should examine what causes participants to negatively compare their physical appearances to others. Rather than developing strategies to intervene when participants are already experiencing negative situations, future work should consider ways to prevent participants from encountering negative-emotion-eliciting situations to begin with.

A strength of the current study is the racially and ethnically diverse sample. This is something that future research should embrace as the overwhelming majority of research on Instagram and other social media focus on White or European samples. A diverse sample not only increases representation but also improves the generalizability of the findings. However, there is still a need for future researchers to recruit more Black participants into their sample. Despite the more inclusive recruitment approach in this study, only 3.24% of the participants identified as Black/African American as opposed to 8% of the student body identifying as Black at the university where the study occurred. In the current study, the internal consistency for the measure of narcissism was relatively low ($\alpha = .68$) in comparison to an example from previous work using a predominantly White sample ($\alpha = .82$; Miller et al., 2014). This measure may not accurately reflect the experiences of racially and ethnically diverse emerging adults. Taking into consideration that this study had a more diverse sample relative to previous studies, future researchers should continue to investigate the reliability of the Narcissistic Personality Inventory-16 (NPI-16) with diverse samples to ensure that the NPI-16 is suitable to assess narcissism scores for participants from a more diverse background.

Future research could incorporate different methods to intervene and understand the emotional experiences of Instagram users. One example could be to use experience sampling methods or diary studies. This approach can allow researchers to collect observations over a longer time period where participants can be prompted (e.g., text message) to document their

emotions while using Instagram. Relative to the current study, an experience sampling method can have higher ecological validity since participants will be using Instagram in the context of their real-world environment without the concern of a reactance effect due to the virtual presence of an experimenter.

4.2 Practical Applications

Based on the qualitative findings from this study, there are a number of suggestions that can be utilized by individuals and social networking companies such as Instagram to potentially improve emotional experiences. Instagram should make recommendations through pop up messages so that users follow content that might validate their emotions and identity. Individual users should then consider following these type of content to feel a deeper sense of representation. Specifically, individuals from marginalized populations can benefit from the representation of their identity seen on social media. Instagram should diversify their content so that the information viewed by users is more inclusive of their experiences.

In the current study, some participants displayed balancing behaviors by changing the content they were looking at to feel better. Instagram could include "check in" messages to their users to assess how they currently feel. Participants who report feeling negative emotions could receive recommendations to view content that are typically known to boost emotions (e.g., animal videos, memes, hobbies). In a similar vein, Instagram can apply these "check in" messages or content suggestions when there local and world events that could cause negative emotions to users. Additionally, Instagram could produce reminders so that participants take a break from content that could be stressful.

Instagram can make recommendations for users to limit following content that might take a toll on their self-esteem, such as content that encourages comparing physical appearance with

others. Messages could be delivered to participants about the potential negative consequences of consuming this type of content. These messages could be tested to examine if it reduces the likeliness of users viewing such content. If users are less likely to view this type of content, they might be less likely to feel negative emotions.

Finally, the qualitative findings from this study can be used as educational tools to improve social media literacy. The educational component should involve relevant parties such as social networking companies, parents, teachers, counselors, and public health professionals to better understand the type of experiences that could influence the psychological well-being of Instagram users. The effects of different content and helpful behavioral strategies should be disseminated as tools for Instagram users to be aware of so that they can implement these tools in a beneficial manner.

4.3 Conclusion

The present study represented an attempt to use a theoretically driven experimental prevention to improve the emotional outcomes of Instagram users relative to control participants. This study incorporated a novel strategy in the form of a video manipulation focused on using reappraisal as an emotion regulation strategy to normalize the experiences that participants may feel while using Instagram. The phenomenological qualitative approach demonstrated the value of conducting one-on-one interviews with participants to better understand the context surrounding their emotional experiences. The qualitative findings provide a rich description of participants' emotional experiences on Instagram that includes how specific content influences participants' emotions and how some participants are already using strategies to manage their emotions. The study provides insight that may help future researchers target new ways to improve participants' emotional experience on Instagram. As social networking sites such as

Instagram continue to become a prevalent part of daily life, it becomes crucial to identify the psychological components involved so that we can maximize the benefits while reducing the negative consequences.

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APPENDICES

Appendix A

Scale for Social Comparison Orientation
(INCOM, Iowa-Netherlands Comparison Orientation Scale) English Version

Most people compare themselves from time to time with others. For example, they may compare the way they feel, their opinions, their abilities, and/or their situation with those of other people. There is nothing particularly 'good' or 'bad' about this type of comparison, and some people do it more than others. We would like to find out how often you compare yourself with other people. To do that we would like to ask you to indicate how much you agree with each statement below.

1. I often compare myself with others with respect to what I have accomplished in life

Strongly disagree 1 2 3 4 5 Strongly agree

2. I always pay a lot of attention to how I do things compared with how others do things

Strongly disagree 1 2 3 4 5 Strongly agree

3. I often compare how my loved ones (boy or girlfriend, family members, etc.) are doing with how others are doing

Strongly disagree 1 2 3 4 5 Strongly agree

4. I am not the type of person who compares often with others (r)

Strongly disagree 1 2 3 4 5 Strongly agree

5. If I want to find out how well I have done something, I compare what I have done with how others have done

Strongly disagree 1 2 3 4 5 Strongly agree

6. I often compare how I am doing socially (e.g., social skills, popularity) with other people

Strongly disagree 1 2 3 4 5 Strongly agree

Appendix B

Narcissistic Personality Inventory-16 (NPI-16)

Read each pair of statements below and place an "X" by the one that comes closest to describing your feelings and beliefs about yourself. You may feel that neither statement describes you well, but pick the one that comes closest. **Please complete all pairs**.
Note. Narcissistic responses are bolded.

1. ___ **I really like to be the center of attention**
   ___ It makes me uncomfortable to be the center of attention

2. ___ I am no better or no worse than most people
   ___ **I think I am a special person**

3. ___ **Everybody likes to hear my stories**
   ___ Sometimes I tell good stories

4. ___ I usually get the respect that I deserve
   ___ **I insist upon getting the respect that is due me**

5. ___ I don't mind following orders
   ___ **I like having authority over people**

6. ___ **I am going to be a great person**
   ___ I hope I am going to be successful

7. ___ People sometimes believe what I tell them
   ___ **I can make anybody believe anything I want them to**

8. ___ **I expect a great deal from other people**
   ___ I like to do things for other people

9. ___ **I like to be the center of attention**
   ___ I prefer to blend in with the crowd

10. ___ I am much like everybody else
    ___ **I am an extraordinary person**

11. ___ **I always know what I am doing**
    ___ Sometimes I am not sure of what I am doing

12. ___ I don't like it when I find myself manipulating people
    ___ **I find it easy to manipulate people**

13. ___ Being an authority doesn't mean that much to me
    ___ **People always seem to recognize my authority**

14. ___ **I know that I am good because everybody keeps telling me so**
    ___ When people compliment me I sometimes get embarrassed

15. ___ I try not to be a show off
    ___ **I am apt to show off if I get the chance**

16. ___ **I am more capable than other people**
    ___ There is a lot that I can learn from other people

Appendix C

Brief Mood Introspection Scale (BMIS; Mayer & Gaschke, 1988)

Instructions: Circle the response on the scale below that indicates how well each adjective or phrase describes your present mood.

(definitely do not feel)	(do not feel)	(slightly feel)	(definitely feel)
XX	X	V	VV

Lively	XX	X	V	VV
Happy	XX	X	V	VV
Sad	XX	X	V	VV
Tired	XX	X	V	VV
Caring	XX	X	V	VV
Content	XX	X	V	VV
Gloomy	XX	X	V	VV
Jittery	XX	X	V	VV
Drowsy	XX	X	V	VV
Grouchy	XX	X	V	VV
Peppy	XX	X	V	VV
Nervous	XX	X	V	VV
Calm	XX	X	V	VV
Loving	XX	X	V	VV
Fed up	XX	X	V	VV
Active	XX	X	V	VV

Overall, my mood is:

Very unpleasant **Very Pleasant**

-10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10

Note. The "Overall, my mood is" section is usually omitted, although some people use it and fold it into the overall score.

Appendix D

(Heatherton & Polivy, 1991) – A measure of state self-esteem

This is a questionnaire designed to measure what you are thinking at this moment. There is, of course, no right answer for any statement. The best answer is what you feel is true of yourself at this moment. Be sure to answer all of the items, even if you are not certain of the best answer. Again, answer these questions as they are true for you RIGHT NOW.

Using the following scale, place a number in the box to the right of the statement that indicates what is true for you at this moment:

1 = not at all
2 = a little bit
3 = somewhat
4 = very much
5 = extremely

1.	I feel confident about my abilities.	☐P
2.*	I am worried about whether I am regarded as a success or failure.	☐S
3.	I feel satisfied with the way my body looks right now.	☐A
4.*	I feel frustrated or rattled about my performance.	☐P
5.*	I feel that I am having trouble understanding things that I read.	☐P
6.	I feel that others respect and admire me.	☐A
7.*	I am dissatisfied with my weight.	☐A
8.*	I feel self-conscious.	☐S
9.	I feel as smart as others.	☐P
10.*	I feel displeased with myself.	☐S
11.	I feel good about myself.	☐A
12.	I am pleased with my appearance right now.	☐A
13.*	I am worried about what other people think of me.	☐S
14.	I feel confident that I understand things.	☐P
15.*	I feel inferior to others at this moment.	☐S
16.*	I feel unattractive.	☐A
17.*	I feel concerned about the impression I am making.	☐S
18.*	I feel that I have less scholastic ability right now than others.	☐P
19.*	I feel like I'm not doing well.	☐P
20.*	I am worried about looking foolish.	☐S

Note: The statements with an asterisk are reversed-keyed items

The letter in the last column indicates the primary factor on which that item loaded in a factor analysis. The three factors were labelled performance self-esteem (P), social self-esteem (S) and appearance self-esteem (A).

Appendix E

UCLA Loneliness Scale (Version 3; Russell, 1996)

Instructions: The following statements describe how people currently feel. For each statement, please indicate how much you feel the way described by circling one of the responses below. Here is an example:

Do you feel happy?

If you don't feel happy at all, you would respond "Not at all"; if you feel extremely happy, you would respond "Extremely"

1. Do you feel that you are "in tune" with the people around you?
Not at all Slightly Very Extremely

2. Do you feel that you lack companionship?
Not at all Slightly Very Extremely

3. Do you feel that there is no one you can turn to?
Not at all Slightly Very Extremely

4. Do you feel alone?
Not at all Slightly Very Extremely

5. Do you feel part of a group of friends?
Not at all Slightly Very Extremely

6. Do you feel that you have a lot in common with the people around you?
Not at all Slightly Very Extremely

7. Do you feel that you are no longer close to anyone?
Not at all Slightly Very Extremely

8. Do you feel that your interests and ideas are not shared by those around you?
Not at all Slightly Very Extremely

9. Do you feel outgoing and friendly?
Not at all Slightly Very Extremely

10. Do you feel close to people?
Not at all Slightly Very Extremely

11. Do you feel left out?
Not at all Slightly Very Extremely

12. Do you feel that your relationships with others are not meaningful?
Not at all Slightly Very Extremely

13. Do you feel that no one really knows you well?
Not at all Slightly Very Extremely

14. Do you feel isolated from others?
Not at all Slightly Very Extremely

15. Do you feel that you can find companionship when you want it?
Not at all Slightly Very Extremely

16. Do you feel that there are people who really understand you?
Not at all Slightly Very Extremely

17. Do you feel shy?
Not at all Slightly Very Extremely

18. Do you feel that people are around you but not with you?
Not at all Slightly Very Extremely

19. Do you feel that there are people you can talk to?
Not at all Slightly Very Extremely

20. Do you feel that there are people you can turn to?
Not at all Slightly Very Extremely

Note. Items 1, 5, 6, 9, 10, 15, 16, 19, and 20 are reverse-scored.

Appendix F

Manipulation check item

Instruction
Based on your 10-minute Instagram use, please answer each item using the following scale:

1----------2----------3----------4----------5----------6----------7
Strongly disagree **Neutral** **Strongly agree**

During the 10-minute Instagram use:

1. ____ When I wanted to feel a more positive emotion (such as happiness or amusement), I changed what I was thinking about.

2. ____ When I wanted to feel less negative emotion (such as sadness or anger), I changed what I was thinking about.

Appendix G

Instagram Usage Tracking Form

	Features (Part 1)					
Participant ID	Post (Photo/Video/Story)	Comment (i.e., tagging other)	Like (photo/video)	Save (photo/video)	Profile Tab	Feed
001						
002						

	Features (Part 2)						
Participant ID	Activity tab	Direct (DM)	Insta Stories	Insta Live	Explore (including search)	IGTV	Reels
001							
002							

Note: A different version will be used to track participants in the treatment condition versus participants in the control condition

Appendix H

Study Script

1. **Welcoming participants**

Hi! My name is _____, I'll be running this study today. What's your name? Oh, pleasure to meet you _____ and thank you so much for giving your time to participate in this research study, we really appreciate it. Just so you know, this study is an experiment investigating the individual styles and experiences of using Instagram.

2. **Consent process**

To start, I will send you the consent form that we'll go through together. I'm going to send it to you now through the chat feature. Additionally, I'll email you the consent form at the end of the session so that you have a copy of the consent form for your record. The link I sent will take you to the consent form through a platform called Qualtrics. Please click on the link. Now, I will go through the form with you. If you have any clarification questions at any point, don't hesitate to ask. Once you've fully read and understood everything, you will be asked to indicate at the end of the form if you agree to participate in the study.

If you agree to participate in this study, please click "Yes". Please enter the following _____ as your participant ID. Thank you.

In case you have more than one Instagram account, please use the account that you usually spend the most time on for this study.

3. **Double check that participants did not access Instagram the day of the study**

Now, I need you to share your screen with me.

Okay, now go into your Instagram account of choice. As a reminder, in the recruitment material, you were instructed not to use your Instagram account the day of the study until this study session. In order to double check that you did not access your Instagram account, could you tap the profile button (*Icon of a Person*) located on the bottom right corner of your Instagram page and then the button on the top right corner of your Profile page (*Three Lines*). Next, click on Your Activity. Now I will have a look.

- If participants did access their Instagram that day (this will show up as using Instagram for more than 1 minute), they will be told the following:
  Unfortunately, I will have to end the study because according to Your Activity, you did use this account today which means you did not comply with the inclusion criteria of the study. Unfortunately, you can no longer proceed with the study. Thank you for your time.
- If participants did not access their Instagram account that day (this will show up as using Instagram for just 1 minute), they will be told the following:

According to Your Activity, you didn't use this account today so thank you so much for complying with the inclusion criteria of the study. Let's proceed to the next part. I will stop your screen sharing for now.

4. **Pretest measures**

Now, I'll be sending you a link to some measures or questionnaires that I would like you to fill out before we start the experiment itself (pretest).

You know how normally when we fill out questionnaires or surveys, we might try to answer everything quickly so that we can get it over with? I don't want you to do that with these questions today. Right now, we don't care about other people. We just care about you and your own experience and that's important to us so please take your time and think about every question as you go. Please **read the instructions carefully and take your time** as you answer these questions. Once you're done, please let me know. Additionally, please enter the following _____ as your participant ID.

5. **After they've filled out the pretest/Pre-recording**

Thank you for filling those measures out. Next, we're going to record you using Instagram for 10 minutes. The purpose of recording is so that we can go back through what you did in the 10 minutes and discuss your styles and also your experiences using Instagram. I would like you to know that at the end of this interview session, the video recording of your Instagram use will be deleted. As long as you're comfortable with this, we can move on.

Once I click 'record', I will switch off my camera and return after 10 minutes. I won't be observing your Instagram usage until we do it together later. Keep in mind that any non-Instagram related use will result in your data being excluded. I suggest you turn off notifications for other applications that could potentially distract you during this particular Instagram use. I also recommend that you reject or ignore any phone calls or text messages that you might receive while participating in the study. You can also change your setting to 'Do not disturb' if that's easier. One more thing, I've sent you a link to a video through the chat. Please watch the following video before you start using Instagram (participants in the treatment and control condition will watch their respective assigned videos). Once you're done watching the video, let me know.

Now, I need you to share your screen with me again. I have started the recording. I'll talk to you in 10 minutes.

6. **Returning after 10 minutes and Posttest measures**

Thank you. I will stop your screen sharing now. Now, I'm going to send you another set of measures to fill out. Again, please read each item carefully and take your time. Please don't forget to enter the following _____ as your participant ID. Let me know once you're done.

7. Transition to Qualitative Portion: Interview

Thank you. Now, we're going to go through the recording of your Instagram use. I'll be sharing my screen with you. By the way, as mentioned during the consent process, this interview session will be audio recorded so that we can better understand the information you've shared later. Keep in mind that for research purposes, my responses to any of your statements might be neutral so that I can stay objective and then you can focus on sharing your own thoughts. As we go through your Instagram use, if there was something that you thought was interesting, or something you liked or disliked or just wanted to share, please feel free to. We want this session to be an opportunity for you to express your Instagram experience in your own words. I'll play the video recording now.

(Experimenter: at several points (at least five; every 2 minutes) during the interview while watching the video recording, ask them the following questions):

What did you feel here?
Why did you feel that way?

8. Once the viewing of the recording is over

Now we're done viewing the video recording together. Thank you by the way. Would you like to share any other thoughts or opinions about your Instagram use or Instagram in general?

Since the interview session is now over, I have stopped the audio recording and I will delete the video recording of your Instagram use. Since my screen is still shared, you will be able to see me delete your video recording now.

9. Demographic form and debriefing

I've sent you a demographic questionnaire to fill out through the chat. Please enter the following _____ as your participant ID.

Thank you! Next, I'm sending you a debriefing form through the chat to explain the study. We'll go through this together. Just so you know, I'll email this form to you at the end of this session so you have a copy.

10. Conclusion and compensation

Thank you very much for your time and your valuable contribution to our research. Just as a reminder, your personal data and identity will not be shared with anyone, but the research team. To conclude, you will be compensated with $7 via an Amazon gift card. I will email the relevant information to claim your gift card once this session ends including a copy of the consent form and the debriefing form. Please let me know if you have any questions. Thank you again and have a lovely rest of your day! ☺

Appendix I

Demographic Questionnaire

What is your age? _____

What is your gender? _____ (leave blank if you prefer not to answer)

What is your status in your undergraduate program?
□ Freshman □ Sophomore □ Junior □ Senior

Which racial/ethnic group do you MOST CLOSELY identify?

□ White/European American	□ Black/African American
□ East Asian/East Asian American	□ South Asian/South Asian American
□ Latinx/Hispanic American	□ Native American/American Indian
□ Middle Eastern/Arab American	□ Other (Please specify): _____

The Instagram account you just used is private or public? _____

Number of Instagram accounts you have: _____

The questions below refer to the **Instagram account you used in this study**:

Numbers of posts you have on Instagram: _____

Number of followers on Instagram: _____

Number of people you follow on Instagram: _____

On average, how much time do you spend on Instagram a day (based on Your Activity)?

_____

Was that typical of how you use Instagram?

❍	Yes
❍	No

If you answered No to the previous question, please explain further.

Describe the Instagram account that you used in this study.

Appendix J

Qualitative Codebook

Semantic Domain	Code	Acronym	Description	Example
Dependent Variables				
	Self-Esteem	SE	Definition: Person's overall positive or negative evaluation of their self-worth. Participants may explain that they feel more negative about themselves after viewing someone else's content.	
	Lonely/Loneliness	Lonely	Participant describes feeling lonely or lacking connection to others. This is when a person feels unpleasant due to the perception that their social relationships are deficient in a meaningful way (Perlman & Peplau, 1981).	
Significant Statements				
	Textural description	TD	what they experienced.	
	Structural description	SD	how they experienced it in terms of context or situations	
Social Comparison				
	Social Comparison	SC	Participant compare themselves/their life to other people (e.g., body, experiences, things people do/have).	
	^Positive Social Comparison	SC-P	Participant compare themselves/their life to other people but the emotions are described positively. Double code with Inspiration/Motivation when applicable.	

	^Negative Social Comparison	SC-N	Participant compare themselves/their life to other people but the emotions are described negatively. FOMO can be an example of negative social comparison.	
General Preferences				
	Likes	Likes	Participant mentions things that they like not specific to IG.	
	Dislikes	Dislikes	Participant mentions things that they don't like not specific to IG.	
Instagram Review				
	Positive comments about IG	IGcom-P	Participant makes a comment that compliments Instagram.	"Instagram is a great place to connect with people".
	Negative comments about IG	IGcom-N	Participant makes a comment that criticizes Instagram.	"IG has a lot of disingenuous stuff". "There's a lot of negativity on here."
	Comparing IG to other apps	IGvsOthers	When participants compare Instagram to other social media platforms such as Twitter, SnapChat, TikTok, Facebook, etc. They often compare features or user experience and express which apps they prefer or spend less/more time on.	
Instagram Behavior				
	Active interaction	ActInt	Participant is describing their direct interactions with other people (more intentional). Only code when participants explicitly mention these.	Sending/replying DMs, reacting to stories, liking, commenting, posting.

	Passive interaction	PassInt	Participant is describing their "mindless" consumption. Only code when participants explicitly mention these.	Mindless scrolling, continuously looking through stories, reels, don't know what they're doing.
Type of Use				
	10-minute Instagram Usage	(10IU):	Reference specific to 10-minute use, might be harder to detect explicitly.	
	General Instagram Use	(GIU):	Reference to general Instagram use.	
Positive emotion				
	Happy for others	Happy4O	Participant views another person's content, and they feel happy for that person. The participant is happy that that person is having a specific experience.	Participant is happy for a friend who just got a new job that they really wanted. Happy for a friend who is doing well.
	Inspiration/Motivation	Insp/Mot	Participant describes using IG for inspiration or feels inspired when viewing content.	
	Feeling connected	Connected	Participant mentions feelings of connection to others.	Participant is dm-ing a friend and says that they feel connected with them.
	Happy	Happy	Participant describe feeling good, happy, or amused.	
	Curiosity	Curious	When a participant describes being curious.	
	Others (drop a memo)			
Negative Emotion				

	FOMO	FOMO	"Fear of Missing Out" is an acronym that might appear among participants. Sometimes they describe this as feeling left out. We also code FOMO under negative social comparison. They don't need to explicitly say "FOMO".	
	Discomfort	Discomfort	To describe an instance of discomfort or distress toward a specific situation or instance. This can include feeling disturbed or disgusted.	
	Bored	Bored	A loss of interest.	
	Annoyed	Annoy	When a participant describes a state of being irritated or bothered.	
	Others (drop a memo)			
Awareness				
	Awareness of others' attention to likes/comments	AO_Att2L/C	Participant expresses that they know of other IG users that care or pay a lot of attention to the amount of likes and comments they get on their posts. Participants may state that they themselves don't pay much attention to those things for their own posts.	
	Personal attention to likes/comments	P_Att2L/C	Participants express that they pay a lot of attention to the amount of likes and comments they get on their posts. Participants may question why some of their posts do better than others.	
	Acknowledging highlight reels	AckHReels	Participant acknowledges that a lot of people on IG will only post the highlights about their life or that they often present a false portrayal of their life that does not represent reality.	

	Caring about what others think	Care/wOT	When participants express that they are careful with what they post or what they like because they are wary of what other people will think of them.	
Reappraisal				
	Reappraisal	Reapp	This is when the participant describes changing their interpretation or perspective to feel better about a situation.	
	^Upregulate positive emotions	ReappPos	Changed their perspective/interpretation of a situation to feel more positive emotions (e.g. happy)	
	^Downregulate negative emotions	ReappNeg	Changed their perspective/interpretation of a situation to feel less negative emotions (e.g. sadness, anger)	

IRB APPROVAL LETTER

Approval Notice
Amendment – Expedited Review
UIC Amendment # 1

August 28, 2020

Vinoadharen Nair Das, BA
Psychology
Phone: (734) 330-8560

RE: **Protocol # 2020-0276**
"Your Perspectives on Instagram"

Dear Mr. Nair Das:

Your application was reviewed and approved on August 27, 2020. The amendment to your research may now be implemented.

Please note the following information about your approved amendment:

In the future, please remember to submit one unified Appendix P with all personnel listed

PIs who wish to begin or resume research involving activities that have been placed on temporary hold by the University due to the COVID-19 pandemic (i.e., non-therapeutic, in-person research) must complete a COVID-19 Human Subjects Research Restart Worksheet for an assessment of their studies prior to resuming or initiating the research.
https://uic.inforeadv4.com/#applicationForms/1817478

Please refer to the Human Subjects Research Restart page on the OVCR website for additional information.
https://research.uic.edu/news-stories/human-subjects-research-restart

The research restart is being managed by the Office of the Vice Chancellor for Research (OVCR) and the UIC Center for Clinical and Translational Sciences (CCTS). Questions about the campus research restart may be directed to research@uic.edu.

Amendment Approval Date: August 27, 2020

Amendment:

Summary: UIC Amendment # 1 dated and received via OPRSLive on August 10, 2020, is an investigator-initiated amendment to:

a) Due to COVID-19 restrictions, revise the protocol to be completed remotely using UIC Zoom as the main platform. All necessary forms (e.g., informed consent, debriefing) and questionnaires will be sent to participants during the study using UIC Qualtrics; and to

increase the sample size from a maximum of 200 to now 300 to increase the statistical probability of finding an effect in my intervention; change compensation from $10 to $7 Amazon gift card; revise the inclusion criteria such that subjects do not have to use iPhones and can join the study regardless of their mobile devices (e.g., Android). There are no changes to the debriefing form (IR, 08/10/2020; RP, v2, 08/10/2020; Questionnaires for IRB Review, v1, 08/10/2020);

b) Add James Lekas, Jade Jeffries, Karina Cisneros, Sarah McInerney, Carla Cavanagh, Yasmin Mam, and Jasmina Buzaljko as research personnel (Appendix P, Parts 1 and 2); and,

c) Submit revised recruitment and consent documents reflection the changes above (Flyer, v2, 08/10/2020; Recruitment Email, v2, 08/10/2020; Recruitment Email Response Script, v3, 08/10/2020; Consent, v4, 08/10/2020).

Approved Subject Enrollment #: 300
Performance Sites: UIC
Sponsor: None
Research Protocol(s):

a) Your Perspectives on Instagram; 08/27/2020
b) Your Perspectives on Instagram (RP); Version 2; 08/10/2020

Documents that require an approval stamp or separate signature can be accessed via OPRS Live. The documents will be located in the specific protocol workspace. You must access and use only the approved documents to recruit and enroll subjects into this research project.

Recruiting Material(s):

a) Flyer; Version 3; 08/27/2020
b) Recruitment Email; Version 2; 08/10/2020
c) Recruitment Email Response Script; Version 3; 08/10/2020

Informed Consent(s):

a) Your Perspectives on Instagram; Version 5; 08/27/2020
b) A waiver of documentation of consent has been granted under 45 CFR 46.117 for the remote/online research (minimal risk); subjects will be provided with an information sheet containing all of the elements of consent.

Please be sure to:

→ **Use only the IRB-approved and stamped consent document(s) and/or HIPAA Authorization form(s) when enrolling subjects.**

→ Use your research protocol number (2020-0276) on any documents or correspondence with the IRB concerning your research protocol.

→ Review and comply with the policies of the UIC Human Subjects Protection Program (HSPP) and the guidance ***Investigator Responsibilities***.

Please note that the IRB has the right to ask further questions, seek additional information, or monitor the conduct of your research and the consent process.

Please be aware that if the scope of work in the grant/project changes, the protocol must be amended and approved by the UIC IRB before the initiation of the change.

We wish you the best as you conduct your research. If you have any questions or need further help, please contact the OPRS at (312) 996-1711 or me at (312) 996-9299. Please send any correspondence about this protocol to OPRS via OPRS Live.

Sincerely,

Allison A. Brown, PhD
IRB Coordinator, IRB # 2
Office for the Protection of Research Subjects

cc: Marisha Humphries (Faculty Sponsor), Psychology, M/C 285
Michael E. Ragozzino, Psychology, M/C 285

VITA

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	UIC Three Minute Thesis Competition, First Place and People's Choice, University of Illinois at Chicago, Chicago, Illinois 2019
	Three Minute Thesis Regional Competition Finalist, Midwestern Association of Graduate Schools (MAGS), St. Louis, Missouri 2019.
	The Upshaw Award for Excellence in Teaching, Department of Psychology, University of Illinois at Chicago, Chicago, Illinois 2020
PUBLICATIONS:	Bonam, C.M., Nair Das, V., Coleman, B.R., & Salter, P. (2018). Ignoring History, Denying Racism: Mounting Evidence for the Marley Hypothesis and Epistemologies of Ignorance. Social Psychological and Personality Science.
	Zinsser, K., Zulauf, C., Nair Das, V., & Silver, H.C. (2017). Utilizing Social-Emotional Learning Supports to Address Teacher Stress and Preschool Expulsion. Journal of Applied Developmental Psychology.
PROFESSIONAL MEMBERSHIP:	Society for Personality and Social Psychology (SPSP) American Educational Research Association (AERA) American Psychological Association (APA) Society for the Teaching of Psychology (APA Division 2)