



# Browsing Different Instagram Profiles and Associations With Psychological Well-Being

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Social networking sites (SNSs) may be transforming young people's social experiences, and browsing SNSs in particular may harm psychological well-being. However, browsing different types of SNS profiles may differentially relate to psychological well-being. In a large and ethnically diverse sample of emerging adults ( $N = 405$ ), this experimental study examined changes in state affect and self-perceptions after browsing one of three different types of profiles on Instagram: an acquaintance, an influencer, or one's own profile. Moreover, this study investigated how individual characteristics may moderate relations between browsing and well-being, by exploring feedback seeking behaviors and the fear of missing out. Browsing one's own Instagram profile led to positive changes in psychological well-being, whereas browsing the profile of either an acquaintance or an Instagram influencer led to negative changes in psychological well-being. Many observed effects, especially those found for the acquaintance and influencer conditions, were moderated by participants' dispositional levels of the fear of missing out and feedback seeking, in which effects were primarily observed for those higher in these characteristics. Findings suggest that SNSs may have positive or negative effects on well-being depending on *who* is online and *what* those individuals are browsing.

**Keywords:** Instagram, social media, feedback seeking, fear of missing out, well-being

## BROWSING DIFFERENT INSTAGRAM PROFILES AND ASSOCIATIONS WITH PSYCHOLOGICAL WELL-BEING

Digital technology is a major component of contemporary emerging adults' development (Coyné et al., 2013). The use of social networking sites (SNSs) is popular, with emerging adults especially drawn to Instagram (Perrin and Anderson, 2019). Some researchers, parents, and policy makers fear that SNSs can negatively influence young people's well-being (George and Odgers, 2015); however, associations between SNS use and well-being are mixed (Verduyn et al., 2017). Increasing evidence suggests that how users are interacting with SNS platforms, rather than how much time, matters more for well-being (Odgers and Jensen, 2020). Passively browsing SNSs (i.e., scrolling without direct interaction), a particularly common SNS behavior (Verduyn et al., 2015), may be one specific type of activity that is negatively associated with well-being (Verduyn et al., 2017). Notably, overall assessments of passive SNS browsing may still be too broad, as effects may differ depending on whose content is being viewed. Passively browsing one's own content can have positive effects, whereas browsing others' content can have negative effects (Vogel and Rose, 2016). In this experiment, we examined how browsing one's own Instagram profile, the profile of an acquaintance,

and the profile of an Instagram influencer affected emerging adults' psychological well-being. Dimensions of well-being included state mood, state self-esteem, positive self-perceptions, and interpersonal negativity (i.e., feelings of envy and jealousy). Further, we examined the moderation role of two constructs relevant to emerging adults' development: dispositional tendencies to seek feedback, and the fear of missing out (FoMO).

## THE TRANSFORMATIVE NATURE OF INSTAGRAM

According to the transformation framework (Nesi et al., 2018a,b), young people's socio-developmental experiences are transformed through SNSs. These experiences are fundamentally changed by several SNS affordances, including asynchronous communication, availability of others, permanent content, the absence of in-person social cues, the publicness of posted content, quantifiable features such as likes and comments, and high visibility (Nesi et al., 2018a,b). Three of these affordances are particularly important in understanding how browsing Instagram relates to psychological well-being: visibility, quantifiability, and publicness.

First, SNSs such as Instagram are highly visual (Nesi et al., 2018a), allowing for the transmission of curated and perfected images (Underwood and Faris, 2015). Although most SNSs have a positivity bias, in which people tend to engage in positive self-presentation (Reinecke and Trepte, 2014), this bias may be especially pronounced on Instagram (Underwood and Faris, 2015; Underwood and Ehrenreich, 2017; Waterloo et al., 2018; Yau and Reich, 2019). The exposure to these positive portrayals is believed to be a driving factor in why passive browsing is linked to poorer well-being (Vogel and Rose, 2016), as exposure to others' positive self-presentation may contribute to the perception that they are leading more rewarding lives than the self (Chou and Edge, 2012). In contrast, viewing one's own positive self-presentation may have positive effects on well-being, perhaps through self-affirmation (Vogel and Rose, 2016), or by operating as a digital photo album (e.g., Budenz et al., 2020), in which users can re-view their saved old photos at the touch of a button.

Second, quantifiable metrics such as likes and comments provide visible feedback (Nesi et al., 2018a). This feedback is highly valued by emerging adults (Baker et al., 2019), and is linked to greater well-being (Valkenburg et al., 2006; Greitemeyer et al., 2014; Tobin et al., 2015; Reich et al., 2018; Zell and Moeller, 2018). Positive self-presentation tends to be perceived positively and elicit positive feedback (Sas et al., 2009; Yang and Brown, 2016); thus, Instagram users may be motivated to engage in positive self-presentation to obtain this positive feedback. It is possible that the exposure to one's previously received positive feedback could boost well-being, whereas exposure to others' received positive feedback could decrease well-being, such as by fueling comparisons to the number of likes and comments others received relative to the self (Nesi et al., 2018b).

Third, the publicness of SNSs allows young people to connect with a large number of known and unknown others (Nesi et al., 2018a). SNS connections vary in terms of social distance, in which

users can connect with both "weak" ties, such as acquaintances, and "strong ties," such as close friends (e.g., Ziegele and Reinecke, 2017; Pham et al., 2019). Interacting with stronger ties, but not necessarily weaker ties, is associated with greater well-being (Burke and Kraut, 2013, 2016). Facebook research suggests that most users connect with others with whom they have "weak" ties (Manago et al., 2012; De Meo et al., 2014). Connections that can be classified as weak may be more prevalent on Instagram compared to Facebook, given that it is common on Instagram to form non-reciprocal connections (i.e., User A can follow User B, but User B does not have to follow User A in return). The current research examined two types of "weaker" ties that Instagram users can be exposed to: acquaintances and Instagram influencers. Although acquaintance connections are common, little research has examined the effects of browsing these profiles (but see Vogel et al., 2015, for an exception). Additionally, Instagram influencers (i.e., individuals who are not famous by conventional means, such as by being an actor or a singer, but still obtain a large following on SNSs) are increasingly common. These individuals often present a glamorous and luxurious lifestyle (Marwick, 2015; Abidin, 2016; Chae, 2018). Although some Instagram influencers may present this lifestyle via connections to famous friends or through personal fortune, other influencers appear to be ordinary people who engage in highly positive self-presentation and who happen to obtain a large following on the platform (Marwick, 2015). Thus, Instagram influencers may be particularly relevant for the transformative features of visibility and quantifiability, due to (a) their highly positive self-presentation, and (b) their large following may increase the likelihood of receiving a high number of likes and comments, which browsers can consequently view. Despite influencers' large presence on Instagram, no known research has experimentally examined the effects of browsing this content on emerging adults' well-being.

## BROWSING ONE'S OWN PROFILE

Individuals may browse their own SNS profiles, perhaps to edit the content, check to see how many likes and comments they have received, or to reminisce, which may have positive effects on well-being (Vogel and Rose, 2016; Krause et al., 2019). Previous experimental research has demonstrated that both editing (Gentile et al., 2012) and viewing one's own Facebook page may boost self-esteem (Gonzales and Hancock, 2011; Toma, 2013). Self-affirmation theory has been applied as a framework to understand these effects (Toma, 2013; Toma and Hancock, 2013). Specifically, self-affirmation theory posits that people have an innate desire to maintain a positive self-image, and people may accomplish this goal by seeking out positive self-relevant information (Steele, 1988). Given the positive self-presentation that occurs on SNSs (Vogel and Rose, 2016), individuals can view positive content about themselves and thus engage in self-affirmation (Toma and Hancock, 2013).

Viewing one's SNS content may be beneficial for other reasons. For example, looking at old content depicting past positive events may promote adaptive effects from positive reminiscing (Good

et al., 2013). Likewise, feedback on SNSs tends to be highly positive (Valkenburg et al., 2006; Rideout et al., 2018; Wenninger et al., 2019). Receiving more likes on SNS content is associated with increased self-esteem (e.g., Burrow and Rainone, 2017), and users may experience positive effects re-exposing themselves to this feedback. For the present study, we expected that viewing one's own Instagram profile would increase psychological well-being, specifically by increasing mood, self-esteem, and positive self-perceptions.

## BROWSING OTHERS' PROFILES

Perhaps due to the high visibility and positive self-presentation tendencies of SNSs (Vogel and Rose, 2016), passive SNS browsing, as a whole, is linked to poorer well-being, including greater depressed mood (Frison and Eggermont, 2016, 2017, for girls only; Escobar-Viera et al., 2018; Burnell et al., 2019; Thorisdottir et al., 2019; but see Beyens et al., 2020) and loneliness (Frison and Eggermont, 2020). Experimental studies in which participants browse content preselected by the researchers (which usually exemplifies especially highly positive self-presentation) have found that Instagram browsing can decrease positive mood, particularly for those who are likely to compare themselves to this content (Weinstein, 2017; de Vries et al., 2018), and can also increase negative mood (Brown and Tiggemann, 2016; Weinstein, 2017). Experiments with "real" SNS content (in which participants log into their personal SNS account and browse others' content) have thus far focused on Facebook, and have found that browsing Facebook can increase negative mood (Fardouly et al., 2015), and decrease positive mood (Yuen et al., 2019). Moreover, browsing one's Facebook news feed can decrease state self-esteem and increase depressive symptoms, although the effects on depressive symptoms may only occur for those with a higher tendency to socially compare (Alfasi, 2019). An additional study found that, after browsing Facebook, participants reported lower well-being at the end of the day compared to baseline assessments of well-being (Verduyn et al., 2015). As the positivity bias is potentially higher on Instagram than Facebook, ecologically valid designs examining Instagram specifically are still needed. Although findings from studies with preselected content and "real" content generally mirror each other, studies that preselect content could inflate estimates as this content may exaggerate the positivity bias, highlighting a need to confirm these findings with ecologically valid designs.

Moreover, few studies have examined the effects of browsing different *types* of SNS profiles. To our knowledge, only one study has examined the effects of browsing the profile of an acquaintance. This study found that for those with a tendency to socially compare, browsing the Facebook page of an acquaintance negatively influences self-perceptions, self-esteem, and negative affect balance (Vogel et al., 2015). We focused on the effects of browsing an acquaintance's profile (rather than other types of profiles, such as friends) because of the high presence of "weak tie" content on SNSs (Manago et al., 2012; De Meo et al., 2014). Thus, when scrolling through one's Instagram feed, it is likely that users would be exposed to a large amount of content

produced by and depicting acquaintances. Additionally, to our knowledge, no studies have yet examined how browsing different types of "real" Instagram profiles influences well-being, although one study examining pre-selected Instagram profiles found that browsing the profile of a traditional celebrity has comparable effects on negative mood as browsing the profile of an unknown peer (Brown and Tiggemann, 2016).

The current study expands on earlier research by examining the effects of browsing different types of profiles on Instagram. We hypothesized that browsing the profile of an Instagram acquaintance and an Instagram influencer would decrease psychological well-being, specifically by decreasing mood, self-esteem, and positive self-perceptions, and increasing interpersonal negativity. Examining differences between the two profiles was exploratory.

## INDIVIDUAL DIFFERENCES

Media effects theorists argue that the influence of the media may depend on individual and situational characteristics (Valkenburg and Peter, 2013; Beyens et al., 2020). The current research considers two individual differences that are relevant for emerging adult development, but have yet to be experimentally explored as moderators in the link between passive browsing and well-being: feedback seeking and the fear of missing out (FoMO).

As previously noted, SNSs such as Instagram are rich in feedback. Emerging adults may be particularly interested in this feedback because of their ongoing identity development (Arnett, 2000). Feedback may help inform their own identity by garnering an assessment of how others view them, or by evaluating behaviors that are positively perceived (e.g., perhaps by viewing an acquaintance's positive feedback, and subsequently "trying out" the acquaintance's self-presentation strategy in an attempt to also receive positive feedback). Additionally, emerging adults may be interested in comparing the feedback that they receive with the feedback that others receive (Nesi et al., 2018b). Although receiving feedback on SNSs is linked to greater well-being (Valkenburg et al., 2006; Greitemeyer et al., 2014; Tobin et al., 2015; Burrow and Rainone, 2017; Reich et al., 2018; Zell and Moeller, 2018), SNS feedback could contribute to maladaptive processes. Individuals who use SNS feedback as a tool for reassurance seeking (e.g., expecting others to comment on their Facebook posts) report lower levels of self-esteem (Clerkin et al., 2013), and those with lower self-esteem place greater importance on receiving likes and feeling bad if they do not reach a desired threshold (Scissors et al., 2016).

In addition, we examined FoMO as a moderator. FoMO is conceptualized as experiencing anxiety over others potentially having more rewarding experiences than the self (Przybylski et al., 2013), and is linked to greater SNS use and poorer well-being (Przybylski et al., 2013; Baker et al., 2016; Blackwell et al., 2017; Buglass et al., 2017; Roberts and David, 2019). FoMO inherently requires some degree of upward social comparison, as a necessary component is perceiving that others are doing better than the self (Burnell et al., 2019; Reer et al., 2019). For emerging adults who are experiencing identity development, they

may experience greater comparison processes such as FoMO to better assess the self. Indeed, empirical evidence suggests that younger adults are more likely to report experiencing FoMO (Przybylski et al., 2013; Blackwell et al., 2017). As it is well-established in experimental studies that the negative effects of browsing are exacerbated for those who engage in social comparison (Vogel et al., 2015; Weinstein, 2017; de Vries et al., 2018; Alfasi, 2019), we focused specifically on FoMO in the current research, which has yet to be explored as a moderator.

We expected that when browsing the profile of an Instagram acquaintance and an Instagram influencer, negative effects from browsing would be enhanced for those greater in feedback seeking tendencies, as the exposure to the presumably positive feedback that others are receiving may be particularly detrimental for those who value receiving this feedback themselves (e.g., fueling comparisons to others' feedback). We also expected that these negative effects would be exacerbated for those higher in FoMO, as these individuals may be more sensitive to how others may be having more rewarding social experiences. Moderation hypotheses for the self condition were exploratory.

## THE CURRENT RESEARCH

This study extends previous research by its greater emphasis on ecological validity, in that it involves browsing actual Instagram profiles to better assess generalizability of effects to real life browsing. Ecologically valid SNS studies would be useful to complement studies with pre-selected browsing stimuli, to ensure that the findings of these studies can generalize to people's actual SNS experiences (e.g., Griffioen et al., 2020). In this study, we include two conditions that contain "real" profiles (the acquaintance and self conditions), and a third condition with pre-selected but "real" profiles, rather than a series of independent images that exist on Instagram (the influencer condition). Additionally, this study extends prior research by examining browsing profiles of different targets, whereas participants in previous studies often engage in general, untargeted browsing (but see Vogel et al., 2015; Brown and Tiggemann, 2016; for exceptions).

The goal of the current research was to examine how browsing three different Instagram profiles (the self, an acquaintance, or an Instagram influencer) relate to psychological well-being. We examined multiple domains of well-being: positive affect, negative affect, state self-esteem, positive self-perceptions, and interpersonal negativity. Although previous research has examined affect (e.g., Fardouly et al., 2015; Yuen et al., 2019) and self-esteem (e.g., Gonzales and Hancock, 2011; Gentile et al., 2012; Toma, 2013; Alfasi, 2019), fewer studies have experimentally investigated self-perceptions and interpersonal negativity (i.e., envy and jealousy) as outcomes. These domains may be especially relevant as the social nature of Instagram may more heavily influence interpersonally oriented facets of well-being; indeed, envy is argued to be a particularly potent emotion tied to SNSs (Krasnova et al., 2015).

## METHOD

### Participants

Initially, 440 undergraduate students from a large, southwestern university were enrolled in the study. As we were interested in emerging adults' Instagram experiences, 23 participants who identified their age as 26 or older and 12 participants who did not identify their age were removed. The final analytic sample included 405 emerging adults (84% female,  $M_{\text{age}} = 20.05$ ,  $SD_{\text{age}} = 1.62$ ,  $\text{Range}_{\text{age}} = 18\text{--}25$ ), recruited over two semesters in the 2017–2018 academic year. The sample was ethnically diverse (44% Asian/Asian-American, 29% White/Caucasian, 15% Hispanic/Latinx, 6% Black/African-American, 6% Mixed/Other). The study was advertised online to students in undergraduate psychology courses as a study examining how Instagram use relates to one's personality. Students received course research credit for their participation. Participation was limited to those with an active Instagram account (defined to students in the study advertisement as logging into their account at least once a week); there were no other requirements for participating. Sensitivity power analyses in G\*Power suggest that, with a sample of 405, an alpha of 0.05, power set to 0.80, and an average correlation among repeated measures of 0.67 (the average correlation observed among the pre- and post-assessments of the variables), power was adequate to detect small effect sizes ( $f = 0.06$ ) for within factor effects.

### Procedure

On arriving at the laboratory, participants placed their belongings, including their cell phone, on a chair across the room to reduce distractions. After obtaining informed consent, participants provided demographic information and completed baseline measures of state affect and self-perceptions using a laboratory desktop computer. To maximize ecological validity, participants were told they would be browsing Instagram as they normally would, and therefore were not provided with a cover story. Participants were only provided a vague description of the study (i.e., how social media relates to personality), and were not provided information on the different conditions.

Participants then logged into their Instagram profile using the laboratory computer and were randomly assigned to one of three conditions. In the self condition, participants browsed only the posts that they themselves had previously uploaded. In the acquaintance condition, participants selected an acquaintance and browsed only the posts uploaded by this individual. An acquaintance was defined as an individual who is approximately the same age and gender, who posts relatively frequently, and someone who is not and has never been close friends with the participant (as browsing the content of close friends can have differential effects than browsing content from acquaintances or strangers; Lin and Utz, 2015; Liu et al., 2016). More specifically, participants were encouraged to choose a target that they knew from high school, but were not friends with then or friends with now. In the Instagram influencer condition, participants browsed only the posts uploaded by an influencer previously chosen by the researchers, with the influencers framed to the participants as strangers. The influencers were gender matched (one male,

one female) to participants and were young adults. The male and female influencers were matched in terms of content uploaded (e.g., photos of themselves in exotic destinations). The influencers were chosen after discussions with undergraduates to determine profiles that were an accurate representation of an Instagram influencer, and a pilot study ( $n = 23$ ) assessing the feasibility of the procedure. It is important to note that the profiles were not chosen to deliberately represent a specific type of self-presentation (e.g., high levels of the beauty ideal); however, analyses suggest that participants perceived that the influencers engaged in highly positive self-presentation (see **Supplemental Materials**), likely due to the inherent nature of these profiles.

All participants browsed the assigned profile for 10 min, with instructions to browse the Instagram profile as they normally would, without interacting directly with the profile (e.g., leaving likes or comments). For all three conditions, participants were instructed to browse the content their browsing target uploaded to their main page (i.e., participants did not view content in Instagram stories). An experimenter who was blind to the study hypotheses monitored time. Participants then logged out of their account and returned to the online questionnaire to complete post-browsing assessments of state affect and self-perceptions, perceptions of the target profile they browsed, number of and types of posts viewed, and surveys assessing personality traits. The experimenter checked and cleared the Instagram search history after each participant to remove any digital traces and to ensure that participants did not view other websites (or visit other Instagram pages or features) during browsing. No instances of visiting other websites or other Instagram pages or features occurred, and a timer embedded in the survey revealed that no participants returned to complete survey measures when they were supposed to be browsing. Because of this, along with how participants placed their phones across the room, we can be reasonably confident that participants engaged in the assigned task.

## Measures

### State Self-Esteem

Both before and after browsing their assigned Instagram profiles, participants were asked to indicate on a 7-point scale (1 = Really bad, 7 = Really good) how they feel about themselves in the present moment as a measure of state self-esteem (Gross, 2009).

### State Affect and Self-Perceptions

To assess well-being pre- and post-browsing, eighteen affect and self-perception items were adapted and modified from Gross (2009). All items utilized a 7-point scale (1 = I definitely do not feel this way right now, 7 = I definitely feel this way right now), and were given to participants both before and after browsing. Based on theoretical reasoning and an exploratory factor analysis conducted on the post-browsing items (see **Supplemental Materials** for analysis and full item list), four subscales were examined: positive affect (three items; happy, excited, calm;  $\alpha_{\text{post}} = 0.67$ ), negative affect (four items; e.g., anger, irritated;  $\alpha_{\text{post}} = 0.69$ ), interpersonal negativity (two items; envy, jealousy;  $\alpha_{\text{post}} = 0.88$ ), and positive self-perceptions (six

items; e.g., confident, valued;  $\alpha_{\text{post}} = 0.92$ ). Two items, smart and physically attractive, were relevant to alternative aims of the study and with plans to be examined in future research. One item, embarrassed, was dropped after the factor analysis due to low loadings. It should be noted that items assessing interpersonal negativity were not added until the second semester of data collection due to an oversight ( $n = 324$ ); however, given that the observed effects with this variable were generally large, we do not expect that this reduction in power influenced the findings.

### Perceptions of Target

To examine if the acquaintances and influencers were perceived to engage in positive self-presentation, participants were asked to what degree six traits described the owner of the Instagram profile that they browsed: appealing to others, popular, confident, accepted, valued, and successful. Participants indicated their responses using a 7-point scale (1 = Definitely does not describe this person, 7 = Definitely describes this person). These results are provided in the **Supplemental Materials**. To put briefly, participants perceived the targets quite positively, for each the self ( $M$ 's range from 4.49 to 5.43), acquaintance ( $M$ 's range from 5.27 to 6.20), and influencer conditions ( $M$ 's range from 5.54 to 6.58), suggesting that the targets tended to engage in positive self-presentation.

### Browsing Experiences

To examine if participants viewed similar content across conditions and as an additional check to ensure that participants engaged in browsing, participants estimated how many pictures they viewed during browsing in an open-ended response. Additionally, participants reported whether or not they viewed pictures of the profile owner, pictures of groups of people, pictures of scenery, captions, and comments.

### SNS Feedback Seeking

Participants completed the 10-item Comparison and Feedback Seeking scale (Nesi, 2014; Nesi and Prinstein, 2015), which assesses the degree to which individuals engage in social comparison and elicit feedback from others through digital communication (e.g., "I use social media to get feedback from others on the things I send/post";  $\alpha = 0.90$ ). For the current research, the scale was modified to focus on SNSs; in the original version, the items focused on electronic interaction in general. The measure uses a five-point scale (1 = Not at all true, 5 = Extremely true). Although research on adolescents suggest that the social comparison and feedback seeking items of the scale load on the same factor (Nesi, 2014), previous research (Burnell et al., 2019) and an exploratory factor analysis conducted with the data used in the current research (using Maximum Likelihood estimation and Oblimin Rotation) suggested that the social comparison items and feedback seeking items are distinct in college students. Thus, we focused specifically on six feedback seeking items, as the moderation role of social comparison is well-established in previous studies (e.g., Vogel et al., 2015; Weinstein, 2017; de Vries et al., 2018).

## Fear of Missing Out (FoMO)

Participants completed the 10-item Fear of Missing Out Scale (Przybylski et al., 2013), which measures an individual's anxiety over thoughts of others having more satisfying and rewarding experiences, and engagement in behaviors to stay knowledgeable of others' activities (e.g., "I fear others have more rewarding experiences than me";  $\alpha = 0.89$ ). The measure utilizes a 5-point scale (1 = Not at all true of me, 5 = Extremely true of me).

## RESULTS

**Table 1** presents descriptive statistics and zero-order correlations between baseline well-being and personality moderators. ANOVAs indicated that conditions did not differ from each other in pre-browsing well-being ( $p$ 's > 0.060), nor did the conditions differ from each other for the moderators ( $p$ 's > 0.245). Chi-square tests indicated that conditions did not differ for gender ( $p = 0.182$ ), but did differ for race/ethnicity,  $\chi^2(8, N = 405) = 16.41, p = 0.037$ . Despite random assignment, Hispanic/Latinx participants were underrepresented, and White/Caucasian participants overrepresented, in the influencer condition. Results with demographic covariates are presented in the **Supplemental Materials**.

### Effects of Condition on Post-browsing Reports

To examine how post-browsing reports of affect and self-perceptions differed between conditions, a series of ANCOVAs were run (**Figure 1**). All analyses were run controlling for the corresponding pre-browsing assessment of each variable; marginal means are reported in-text and in **Figure 1**. Post-browsing self-esteem significantly differed by condition,  $F_{(2,399)} = 22.60, p < 0.001, MSE = 0.85, \eta_p^2 = 0.10$ . Participants in the self condition reported higher self-esteem ( $M = 5.88, SE = 0.08$ ) than those in the acquaintance ( $M = 5.30, SE = 0.08$ ) and influencer ( $M = 5.17, SE = 0.08$ ) conditions; the acquaintance and influencer conditions did not differ from each other ( $p = 0.277$ ). Post-browsing positive affect significantly differed by condition,  $F_{(2,400)} = 8.19, p < 0.001, MSE = 0.90, \eta_p^2 = 0.04$ .

Participants in the self condition reported higher positive affect ( $M = 4.49, SE = 0.08$ ) than those in the acquaintance ( $M = 4.17, SE = 0.08$ ) and influencer ( $M = 4.04, SE = 0.08$ ) conditions; the acquaintance and influencer conditions did not differ from each other ( $p = 0.263$ ). Post-browsing negative affect did not significantly differ by condition,  $F_{(2,400)} = 0.53, p = 0.588, MSE = 0.38, \eta_p^2 = 0.00$ . Post-browsing interpersonal negativity significantly differed by condition,  $F_{(2,320)} = 28.65, p < 0.001, MSE = 1.33, \eta_p^2 = 0.15$ . Participants in the self condition ( $M = 1.32, SE = 0.11$ ) reported lower interpersonal negativity than those in the acquaintance ( $M = 2.14, SE = 0.11$ ) and influencer ( $M = 2.46, SE = 0.11$ ) conditions; the acquaintance and influencer conditions also significantly differed from each other ( $p = 0.045$ ). Post-browsing positive self-perceptions significantly differed by condition,  $F_{(2,400)} = 23.42, p < 0.001, MSE = 0.56, \eta_p^2 = 0.11$ . Participants in the self condition reported greater positive self-perceptions ( $M = 4.72, SE = 0.06$ ) than those in the acquaintance ( $M = 4.20, SE = 0.06$ ) and influencer ( $M = 4.15, SE = 0.07$ ) conditions; the acquaintance and influencer conditions did not significantly differ from each other ( $p = 0.616$ ).

### Within-Person Changes for Well-Being by Condition

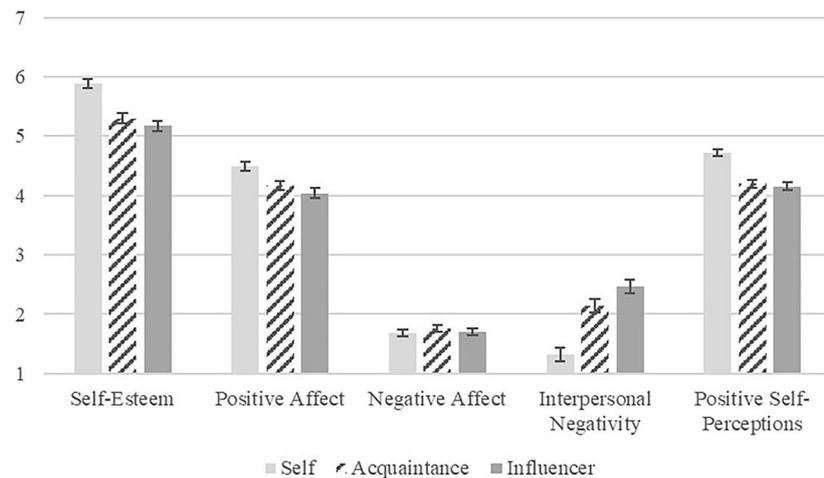
To examine within-person changes in affect and self-perceptions, a series of multilevel analyses were conducted. Due to the nested nature of the data (two time points nested within each individual), multilevel modeling (MLM) was used with Restricted Maximum Likelihood Estimation. A random intercept was included to account for non-independence. Analyses were run examining changes in affect and self-perceptions within each condition, with the conditions dummy coded and the condition of interest the reference group. Time was effects coded (pre-browsing =  $-0.5$ , post-browsing =  $0.5$ ). Prior to the analyses reported below, analyses examined whether changes in affect and self-perceptions differed significantly across conditions, by testing whether the interaction between time and condition was significant. All changes within conditions significantly differed from each other ( $p$ 's < 0.001), except

**TABLE 1** | Means, standard deviations, and zero-order correlations of study variables.

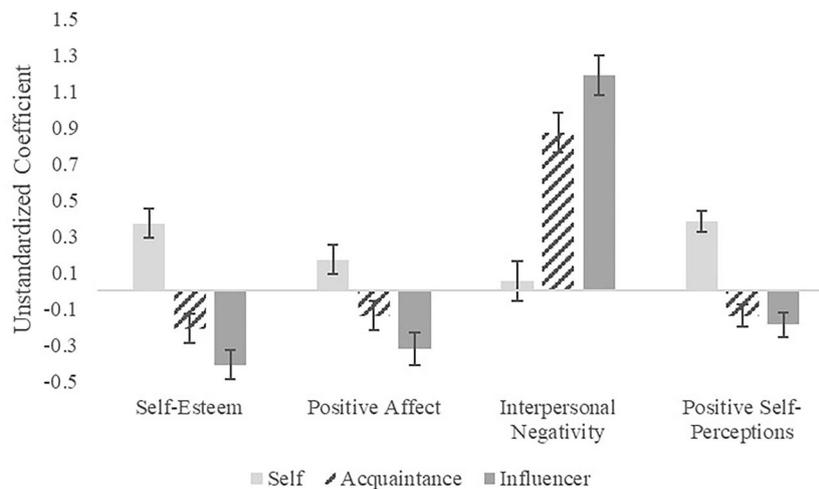
	1	2	3	4	5	6	7
1. Pre_SE	–						
2. Pre_PA	0.56**	–					
3. Pre_NA	–0.50**	–0.39**	–				
4. Pre_IntNeg	–0.20**	–0.07	0.45**	–			
5. Pre_SP	0.62**	0.58**	–0.34**	–0.11*	–		
6. FS	–0.06	–0.05	0.14**	0.17**	–0.08	–	
7. FoMO	–0.15**	–0.05	0.24**	0.20**	–0.16**	0.55**	–
Mean	5.53	4.33	1.83	1.27	4.34	2.51	2.47
SD	1.24	1.19	0.88	0.71	1.21	0.99	0.89

SE, Self-esteem; PA, Positive Affect; NA, Negative Affect; IntNeg, Interpersonal Negativity; SP, Self-Perceptions; FS, Feedback Seeking; FoMO, Fear of Missing Out.

\*\* $p < 0.01$ ; \* $p < 0.05$ .



**FIGURE 1** | Post-browsing marginal means by condition. Error bars represent standard errors.



**FIGURE 2** | Within-person changes in affect and self-perceptions by condition. Error bars represent standard errors.

for negative affect ( $p = 0.762$ ); thus, negative affect was not examined further.

Results are shown in **Figure 2**. Participants in the self condition reported significant increases in self-esteem ( $b = 0.37$ , 95% CI [0.21, 0.53],  $SE = 0.08$ ,  $p < 0.001$ ,  $d = 0.41$ ), and positive self-perceptions ( $b = 0.38$ , 95% CI [0.25, 0.50],  $SE = 0.06$ ,  $p < 0.001$ ,  $d = 0.44$ ), as well as marginal increases in positive affect ( $b = 0.17$ , 95% CI [0.00, 0.33],  $SE = 0.08$ ,  $p = 0.051$ ,  $d = 0.16$ ). There were no changes in interpersonal negativity,  $b = 0.05$ , 95% CI [-0.17, 0.26],  $SE = 0.11$ ,  $p = 0.654$ ,  $d = 0.08$ .

Participants in the acquaintance condition reported significant decreases in self-esteem ( $b = -0.21$ , 95% CI [-0.38, -0.05],  $SE = 0.08$ ,  $p = 0.010$ ,  $d = 0.20$ ) and positive self-perceptions ( $b = -0.14$ , 95% CI [-0.27, -0.01],  $SE = 0.06$ ,  $p = 0.030$ ,  $d = 0.20$ ), and significant increases in interpersonal negativity ( $b = 0.87$ , 95% CI [0.65, 1.08],  $SE = 0.11$ ,  $p < 0.001$ ,  $d = 0.72$ ).

There were no changes in positive affect ( $b = -0.14$ , 95% CI [-0.31, 0.02],  $SE = 0.08$ ,  $p = 0.094$ ,  $d = 0.14$ ).

Participants in the influencer condition reported significant decreases in self-esteem ( $b = -0.41$ , 95% CI [-0.57, -0.24],  $SE = 0.08$ ,  $p < 0.001$ ,  $d = 0.43$ ), positive affect ( $b = -0.32$ , 95% CI [-0.49, -0.15],  $SE = 0.09$ ,  $p < 0.001$ ,  $d = 0.32$ ), and positive self-perceptions ( $b = -0.19$ , 95% CI [-0.32, -0.06],  $SE = 0.07$ ,  $p = 0.003$ ,  $d = 0.26$ ), as well as significant increases in interpersonal negativity ( $b = 1.19$ , 95% CI [0.97, 1.42],  $SE = 0.11$ ,  $p < 0.001$ ,  $d = 0.79$ ).

## Moderation

MLM analyses were run examining feedback seeking and FoMo as moderators for within-person effects. The moderators were continuous and were grand-mean centered. Significant

interactions were probed using simple slope analyses, in order to determine effects at one standard deviation above and one standard deviation below the mean. Due to the large number of tests, the  $p$ -value was set to 0.01. Prior to running the analyses reported below, analyses were run to examine if moderation significantly differed across conditions, by testing whether the three-way interaction between time, condition, and each moderator was significant. There were no significant differences between conditions for positive affect or negative affect ( $p$ 's > 0.032), and therefore follow-up analyses were not run for either outcome. Additionally, there were no differences between condition for interpersonal negativity when feedback seeking was a moderator ( $p = 0.014$ ).

For the self condition, the effects of browsing on positive self-perceptions were contingent on FoMO ( $b = 0.20$ , 95% CI [0.06, 0.33],  $SE = 0.07$ ,  $p = 0.004$ ) and feedback seeking ( $b = 0.22$ , 95% CI [0.09, 0.34],  $SE = 0.07$ ,  $p = 0.001$ ). Self-perceptions did not change for those lower in FoMO and feedback seeking ( $p$ 's > 0.062), but increased for those higher in FoMO ( $b = 0.52$ , 95% CI [0.35, 0.68],  $SE = 0.08$ ,  $p < 0.001$ ) and feedback seeking ( $b = 0.59$ , 95% CI [0.42, 0.77],  $SE = 0.09$ ,  $p < 0.001$ ). There was no significant moderation for self-esteem ( $p$ 's > 0.061) or interpersonal negativity ( $p = 0.686$ ).

For the acquaintance condition, the effects of browsing on self-esteem were contingent on FoMO ( $b = -0.38$ , 95% CI [-0.56, -0.19],  $SE = 0.09$ ,  $p < 0.001$ ) and feedback seeking ( $b = -0.23$ , 95% CI [-0.39, -0.08],  $SE = 0.08$ ,  $p = 0.004$ ). Self-esteem did not change for those lower in FoMO or feedback seeking ( $p$ 's > 0.187), but decreased for those higher in FoMO ( $b = -0.51$ , 95% CI [-0.74, -0.29],  $SE = 0.11$ ,  $p < 0.001$ ) and feedback seeking ( $b = -0.43$ , 95% CI [-0.64, -0.21],  $SE = 0.11$ ,  $p < 0.001$ ). The effects on interpersonal negativity were contingent on FoMO ( $b = 0.47$ , 95% CI [0.22, 0.71],  $SE = 0.12$ ,  $p < 0.001$ ). Interpersonal negativity did not change for those lower in FoMO ( $p = 0.018$ ) but increased for those higher in FoMO ( $b = 1.21$ , 95% CI [0.92, 1.51],  $SE = 0.15$ ,  $p < 0.001$ ). Effects on positive self-perceptions were contingent on FoMO ( $b = -0.19$ , 95% CI [-0.33, -0.04],  $SE = 0.07$ ,  $p = 0.010$ ), and feedback seeking ( $b = -0.17$ , 95% CI [-0.29, -0.05],  $SE = 0.06$ ,  $p = 0.005$ ). Self-perceptions did not change for those lower in FoMO or feedback seeking ( $p$ 's > 0.632), but decreased for those higher in FoMO ( $b = -0.29$ , 95% CI [-0.47, -0.12],  $SE = 0.09$ ,  $p = 0.001$ ) and feedback seeking ( $b = -0.30$ , 95% CI [-0.46, -0.13],  $SE = 0.08$ ,  $p < 0.001$ ).

For the influencer condition, there was no moderation for self-esteem ( $p$ 's > 0.081). Effects for interpersonal negativity were contingent on FoMO ( $b = 0.33$ , 95% CI [0.08, 0.57],  $SE = 0.12$ ,  $p = 0.009$ ). Interpersonal negativity increased for both those lower ( $b = 0.93$ , 95% CI [0.64, 1.22],  $SE = 0.15$ ,  $p < 0.001$ ) and higher in FoMO ( $b = 1.51$ , 95% CI [1.19, 1.84],  $SE = 0.16$ ,  $p < 0.001$ ), with the effect stronger for those higher in FoMO. The effect on positive self-perceptions was contingent on FoMO ( $b = -0.28$ , 95% CI [-0.42, -0.14],  $SE = 0.07$ ,  $p < 0.001$ ) and feedback seeking ( $b = -0.20$ , 95% CI [-0.32, -0.07],  $SE = 0.06$ ,  $p = 0.002$ ). For those lower in FoMO and feedback

seeking, positive self-perceptions did not change ( $p$ 's > 0.756). Browsing decreased positive self-perceptions for those higher in FoMO ( $b = -0.47$ , 95% CI [-0.66, -0.28],  $SE = 0.10$ ,  $p < 0.001$ ) and feedback seeking ( $b = -0.40$ , 95% CI [-0.58, -0.22],  $SE = 0.09$ ,  $p < 0.001$ ).

## Additional Analyses

Additional analyses are presented in the **Supplemental Materials**. First, analyses were run controlling for gender, race/ethnicity, number of posts viewed, whether scenery pictures were viewed, and whether comments were viewed. This was due to college women preferring Instagram more than men (Shane-Simpson et al., 2018), and differences across conditions in race/ethnicity, number of posts viewed, and whether scenery pictures were viewed. Specifically, those in the influencer condition viewed more posts than those in the self and acquaintance conditions, and those in the influencer condition viewed more scenery pictures than those in the acquaintance condition. Viewing comments did not differ across conditions (81% of participants in the self condition, 74% in the acquaintance condition, 79% in the influencer condition); however, we controlled for this because our interpretation of the results is influenced by the presence of and participants' attention to the comments. With these covariates, the effect of participants in the influencer condition reporting greater interpersonal negativity compared to those in the acquaintance condition was now marginally significant ( $p = 0.078$ ). The moderation effect of FoMO on positive self-perceptions in the acquaintance condition was marginally significant with the more stringent  $p$ -value ( $p = 0.011$ ). Otherwise, results remained the same.

Exploratory analyses assessed how the participant's Instagram posting and browsing frequency may moderate effects on well-being. No significant findings emerged. We also assessed how interpersonally-oriented perceptions (popularity, acceptance) of the browsing target may influence effects on well-being. This was of particular interest for the acquaintance condition, as targets higher in these perceived traits may have a qualitatively different type of profile, such as through accruing more likes and comments. Perceived popularity and acceptance were significant moderators for the self condition on positive self-perceptions. Increases in self-perceptions were strengthened for those who perceived themselves to be higher in popularity and acceptance. Analyses for the acquaintance condition were not significant with the more stringent  $p$ -value. Popularity was a significant moderator for the influencer condition on interpersonal negativity. Increases in interpersonal negativity were only observed for those who perceived the influencer as higher in popularity.

We examined if FoMO and feedback seeking interacted with each other in predicting changes in well-being, and if both moderators interacted with key demographic variables (age, gender, race/ethnicity) in predicting changes in well-being. None of these analyses were significant. Finally, due to how FoMO and feedback seeking emerged as significant moderators in the self condition, we examined if those higher in these traits may differ in the type of content they post and attend to when viewing

their own profiles, in terms of groups of people, scenery pictures, captions, and comments. Those higher in FoMO had greater odds of reporting viewing groups of people and marginally higher odds of reporting viewing comments, and those higher in feedback seeking had lower odds of viewing scenery pictures; analyses were otherwise not significant.

## DISCUSSION

These findings generally support our hypotheses in that browsing one's own Instagram profile led to increased well-being and browsing others' profiles led to decreased well-being, for both acquaintances and Instagram influencers. The results suggest that many of these effects are contingent on emerging adults' dispositional levels of feedback seeking and FoMO.

### Effects of Viewing One's Own Profile

Compared to pre-browsing, emerging adults who browsed their own profile reported small-to-moderate increases in self-esteem and positive self-perceptions. These results replicate previous research that has found that viewing and editing one's own Facebook page boosts self-esteem (Gonzales and Hancock, 2011; Gentile et al., 2012; Toma, 2013). People may experience self-affirmation after viewing the presumably positive events of their lives that they showcased online (Toma, 2013; Toma and Hancock, 2013). People may also experience positive reminiscing looking back at these positive events (Good et al., 2013), and may enjoy re-viewing positive feedback left by others (e.g., Burrow and Rainone, 2017). There were no significant findings observed for interpersonal negativity, perhaps because emerging adults are unlikely to experience fluctuations in envy and jealousy by looking at their own content.

The effects on positive self-perceptions were only observed for emerging adults higher in FoMO and feedback seeking. Perhaps those who are engrossed with online feedback seeking experience boosts in their positive self-perceptions when looking back at, presumably, the positive feedback they previously received. Moreover, perhaps those who fear that others are having more rewarding experiences than the self are appeased by looking, presumably, at their own positive life experiences. This highlights the transformative nature of SNSs such as Instagram, particularly in respect to visuality and quantifiability. Emerging adults who may be sensitive to others' evaluations of the self, or anxious about how their own social experiences compared to others, may find (temporary) relief looking back at their own content. The lack of significant findings for those lower in these traits could be because these individuals feel secure in their sense of self, and browsing their own profile does not necessarily affirm their positive self-image, at least in regards to positive self-perceptions.

Supplemental analyses examining emerging adults who viewed their own profile indicated that those higher in FoMO reported greater odds of viewing groups of people and marginally greater odds of viewing comments, whereas those higher in feedback seeking reported lower odds of viewing scenery pictures. It is possible that those higher in FoMO and feedback

seeking have qualitatively different profiles (in terms of content uploaded and comments received) than those lower in these traits, or perhaps attend to different types of content and features when viewing their profile (e.g., those higher in FoMO may be more likely to look at comments compared to those lower in FoMO). Future research should systematically assess different types of Instagram content to see how those higher on these traits may differ in the types of content they upload. Future research can also adapt eye-tracking technology to examine if those higher in these traits visually attend to their own content differently than those lower in these traits.

### Effects of Viewing the Profile of an Acquaintance

Compared to pre-browsing, emerging adults who browsed the profile of an acquaintance reported small decreases in self-esteem and positive self-perceptions, and large increases in interpersonal negativity. Perhaps self-esteem and self-perceptions decreased (whereas positive and negative affect were unaffected) because they are especially tied to one's overall sense of self. By viewing the content of a known acquaintance, emerging adults may be especially likely to evaluate their own sense of self in relation to this individual, and therefore detectable immediate changes may be limited to self-oriented domains rather than overall mood. Interpersonal negativity may have increased because viewing the positive self-presentation of others may trigger feelings that others are leading better lives (e.g., Chou and Edge, 2012).

Several moderation effects were observed. Specifically, decreases in state self-esteem and positive self-perceptions, and increases in interpersonal negativity, were only observed for those higher in FoMO (although notably, moderation for self-perceptions was at the threshold of significance when using a more stringent  $p$ -value). This is in line with previous research suggesting that negative effects of SNS browsing are generally limited to those who have a tendency to compare (Vogel et al., 2015; de Vries et al., 2018), and expands on these findings by focusing on a type of comparison tendency that is specifically socially-oriented. Perhaps those who have a tendency to fear that others are having more rewarding experiences feel particularly worse when viewing content that may confirm these fears, thus potentially engaging in harmful, upward social comparisons. Additionally, decreases in state self-esteem and positive self-perceptions were only observed for those higher in feedback seeking. Those who value receiving feedback on SNSs may be especially negatively affected when viewing the presumably positive feedback that others receive. Together, these findings suggest how Instagram can transform emerging adults' social experiences, particularly for those higher in their tendency to seek feedback and experience FoMO. For example, those higher in their tendency to seek feedback may be more sensitive to the quantifiable nature of Instagram, and compare their own received feedback to the feedback received by an acquaintance. Those higher in FoMO may be particularly affected by how the visual affordances of Instagram can easily portray others' positive social experiences (e.g., Underwood and Ehrenreich, 2017).

## Effects of Viewing the Profile of an Influencer

Compared to pre-browsing, emerging adults who browsed the profile of an Instagram influencer reported small-to-moderate decreases in self-esteem, positive affect, and positive self-perceptions, and large increases in interpersonal negativity. These results generally mirrored the findings observed for the acquaintance condition, with the notable additional finding concerning positive affect. The Instagram influencers were especially perceived positively by participants, suggesting that these individuals engaged in particularly high positive self-presentation. Therefore, immediate effects may generalize to domains beyond those most relevant to one's sense of self. With that said, however, between-subject analyses suggested no robust post-browsing differences between the acquaintance and influencer conditions.

Additionally, decreases in positive self-perceptions only occurred for those higher in FoMO and feedback seeking. Again, this suggests that negative effects of browsing in certain domains may be limited to those who a) tend to perceive that others have more rewarding experiences than the self (and may engage in more upward social comparisons when browsing), and/or b) who have a tendency to elicit feedback from others on SNSs. For interpersonal negativity, it was observed that although interpersonal negativity increased for those both lower and higher in FoMO, these changes were especially pronounced for those higher in FoMO. Perhaps no browser is fully immune to experiencing feelings of envy and jealousy when browsing the highly positive accounts of Instagram influencers, with those who have a tendency to perceive that others have more rewarding social experiences especially affected. The tenets of the transformation approach may operate similarly but amplified when browsing the profile of an influencer compared to browsing the profile of an acquaintance, namely in terms of visibility (with influencers perhaps engaging in particularly highly positive self-presentation) and quantifiability (with influencers potentially accruing more feedback). The amplification of these components may be aided by publicness, as a fundamental goal for influencers is to obtain a larger following, which may be done by engaging in especially positive self-presentation, and may result in more feedback. Given that results were generally similar for acquaintances and influencers, future research is needed that better tests these tenets of the transformation approach, to determine if and when browsing influencers' profiles may have differential effects on emerging adults' psychological well-being compared to others' profiles.

## Limitations and Future Directions

These findings should be considered in the context of several limitations. First, we omitted implementing a cover story to maximize ecological validity. We instructed participants to browse the Instagram profiles as they normally would, and a cover story (e.g., using a bogus memory task; Fardouly et al., 2015) may have diverted their full attention from browsing. Thus, some of our findings may have been influenced by demand characteristics. Moreover, although we aimed to

maximize ecological validity, the study nonetheless took place in a laboratory setting and also involved browsing using a desktop computer, which may provide a different browsing experience compared to browsing Instagram using one's smartphone. Future research could supplement experimental designs with daily diary designs that can capture more naturalistic browsing experiences. Second, we opted for a repeated measures design to maximize power, and therefore we did not use a control group. Given that different effects were observed across conditions, we can be reasonably confident that our findings are a result of the manipulation and not due to the passing of time. Third, our Instagram influencer targets, although matched for content and age, were chosen somewhat arbitrarily. Before the study, we conducted discussions with undergraduates to find typical influencer profiles and further tested the chosen profiles in a pilot study. However, we did not quantitatively assess the degree to which the targets engaged in overall positive self-presentation or specific types of positive self-presentation (e.g., exemplifying the beauty ideal), which would have provided a more systematic approach to choosing profiles.

Additionally, future research could examine participants' personal connections with influencers as a potential moderator. The chosen influencers were posed as strangers to participants, and it is plausible that many would not normally follow these types of profiles, which may reduce ecological validity. To date, experimental examinations of browsing influencers' profiles are lacking, and we aimed to provide a foundation for future research by including this popular type of profile in our design. To further enhance ecological validity, future studies could have participants personally select an influencer to browse, which can increase personal relevance. Studies could also assess characteristics such as participants' perceived similarity to and likelihood to form a parasocial relationship with a given influencer, and test for moderation. It is possible that under some circumstances, the effects of browsing are positive. Specifically, for emerging adults who perceive a browsing target to be more similar to the self, they may be more likely to engage in assimilative comparisons (Collins, 1996), which elicits positive emotions including inspiration, admiration, and optimism (Smith, 2000). Perceived similarity with a given influencer is strongly correlated with forming a parasocial relationship with that influencer (Lou and Kim, 2019), suggesting that browsing the Instagram content of an influencer with whom one has a parasocial relationship may have positive effects.

In addition, the chosen acquaintances differed across participants, introducing variability in the participants' browsing experiences. It is plausible that characteristics of the browsing target (e.g., number of followers, number of likes and comments) further influence how well-being is affected from browsing, which future research should explore further. There was also variability within the self condition. In some circumstances, viewing one's own Instagram profile may have negative effects. For example, receiving few likes may negatively influence well-being (Hayes et al., 2016), and therefore viewing content that did not receive this positive feedback may be harmful. Browsing old content may reveal preserved negative content (e.g., cyberbullying; Underwood and Ehrenreich, 2017), and

some types of content that may have once been positive may now instead trigger negative memories (e.g., the demise of a close friendship; a romantic relationship breakup; Lukacs and Quan-Haase, 2015). Future research should examine if and when viewing one's own content may have negative effects on well-being.

More research is needed that assesses how closeness to the browsing target may influence effects on well-being. There is some evidence that browsing the SNS content of close friends can boost well-being (Lin and Utz, 2015; Liu et al., 2016). We did not include close friends as a condition in the current study due to our focus on acquaintances, whose content is more common on SNSs (Manago et al., 2012; De Meo et al., 2014), and to maximize power. Future research should systematically test how the effects of browsing content from close friends comparatively differs from browsing content from acquaintances and strangers.

We were also limited in our ability to examine gender and ethnic differences in the effects of browsing Instagram. The sample was largely female, and despite random assignment, Hispanic/Latinx participants and White/Caucasian participants were disproportionately represented across conditions. Supplemental analyses assessed gender and race/ethnicity as potential moderators for effects, with no significant findings observed. However, future research is needed that carefully recruits equal group sizes to appropriately test gender and race/ethnicity as moderators, in order to fully assess if moderation effects exist. For example, it is possible that significant moderation may emerge depending on if the race/ethnicity of the participant matches the race/ethnicity of the browsing target.

Our measures also had some limitations. We used brief assessments of positive and negative affect to reduce participant burden, although our items were adapted from previous research and a factor analysis supported our composites. Perhaps we observed few significant differences for these variables because our items may not have fully captured positive and negative affective states. Likewise, we utilized a single item to measure state self-esteem; although this has been previously done (Gross, 2009), the item may not have fully captured state self-esteem. Finally, although we assessed what types of content participants were exposed to in each condition (e.g., pictures with groups of people) and controlled for when there were differences in conditions (i.e., scenery pictures), more could be done to capture the diverse set of content that people post on Instagram, which can further enhance generalizability. These items were limited as they were designed to a) examine broad differences in viewing content across conditions, and b) serve as an extra check to ensure that participants engaged in browsing. Additionally, as the participants themselves reported on these categories, responses were subject to interpretation (e.g., whether scenery pictures include people). Future research should carefully assess different types of image content to examine how exposure to various content (e.g., viewing pictures of groups of people versus selfies) may moderate the observed effects.

Although we interpret our findings in the context of positive self-presentation due to the wealth of previous literature suggesting that images and feedback on SNSs are positive, we did

not strictly quantify the extent to which this occurred, especially in terms of feedback (although perceptions of the browsing targets suggested that the targets did engage in positive self-presentation). Future research could explore the extent to which positive images and comments moderate effects on browsers' well-being, such as by implementing observational coding techniques. Importantly, Instagram is currently experimenting with hiding the number of likes when browsing others' content (Mosseri, 2019), which influences the extent to which feedback is displayed to browsers. Although this change was made after data collection for this study was complete and therefore does not influence our results, this has important implications for understanding how emerging adults may be influenced by browsing in the future, as effects on well-being may change. Finally, future research could also explore how viewing others' profiles may elicit positive effects. For example, there may be circumstances where positive effects on well-being occur through the elicitation of downward social comparisons, in which browsing targets are perceived to be worse off than the self. Alternatively, there could be browsing experiences that evoke feelings of optimism and inspiration (i.e., assimilative emotions; Park and Baek, 2018).

## CONCLUSIONS

This study has three main implications. First, we echo calls from other researchers to consider different types and the content of SNS use, rather than broad assessments of total time spent online (Odgers and Jensen, 2020). Our study demonstrates that browsing one's own Instagram profile can have positive effects, whereas browsing others' profiles can have negative effects, with effect sizes generally small-to-moderate. Moreover, effects from browsing acquaintances' and influencers' profiles were fairly comparable. These small, negative effects further suggest that blanket statements that SNSs are harmful may not be accurate, and that even passive browsing, an activity that is commonly viewed as negative (Verduyn et al., 2017), may have positive effects. Notably, these statements are often targeted at youth (e.g., Twenge and Campbell, 2019). Our findings suggest that more nuanced investigations into the links between youth's social media use and well-being are needed. There is reason to believe that our observed findings may differ for adolescents, as their use of Instagram may be different from how college students use Instagram. For example, adolescents may be more sensitive to quantifiable indices of peer approval such as likes and comments (e.g., Nesi et al., 2018a,b).

Second, our findings highlight the need to consider personality traits when examining SNS effects. Negative effects from browsing others' profiles were generally limited to those higher in FoMO and feedback seeking, and therefore many users may not experience strong negative effects from browsing, at least in the assessed domains. This is in line with previous research that suggests that negative social media experiences may be amplified for those who are already poorly adjusted (Rideout et al., 2018). Third, for the self condition, boosts in positive

self-perceptions were only observed for those higher in FoMO and feedback seeking. These individuals are also the same as those particularly adversely affected by browsing others' profiles. Therefore, a certain subset of individuals may be susceptible to a cycle of experiencing especially positive effects from viewing their own profile, only to experience especially negative effects from viewing others' profiles. Ultimately, our findings suggest that different types of Instagram use can have differential effects based on the profile being viewed and the personality traits of users.

## DATA AVAILABILITY STATEMENT

The datasets presented in this study can be found in online repositories. The names of the repository/repositories and accession number(s) can be found here: <https://osf.io/czfwu/>.

## ETHICS STATEMENT

The studies involving human participants were reviewed and approved by The University of Texas at Dallas Institutional Review Board. The patients/participants provided their written informed consent to participate in this study.

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## AUTHOR CONTRIBUTIONS

KB, MG, and MU conceptualized the study. KB and MG collected the data. KB conducted the analyses and drafted the manuscript. MG and MU provided critical revisions for the manuscript. All authors approved of the final manuscript.

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## SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/fhumd.2020.585518/full#supplementary-material>

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**Conflict of Interest:** The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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