Active Instagram Use and Its Association With Self-Esteem and Well-Being

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Over the last two decades, social media has become an integral facet of modern society. Image-based social networking sites such as Instagram have become increasingly popular among adolescents and young adults. However, to date, there is a preponderance of conflicting research regarding the impact of social media use, particularly of image-based platforms, on subsequent user outcomes. Utilizing a snowball sample of 359 college-aged individuals from throughout the United States, the present study sought to analyze the relationship between active social media use and its association with user self-esteem and well-being through data obtained through survey research from undergraduate college students. It was hypothesized that active Instagram use would be positively associated with user well-being and self-esteem. Not only was this hypothesis supported, but our findings reveal that intensity of Instagram use serves as a mediating variable in the relationship between active Instagram use and well-being and self-esteem. Specifically, respondents who identified as more active Instagram users used social media more intensely, and those who used social media more intensely had higher self-esteem. Similarly, those who used social media more intensely reported higher levels of well-being. While the correlations among these variables may be slight, we argue that they pose implications regarding how usage patterns impact user outcomes. These findings illustrate the role of intensity of Instagram usage on user outcomes and reveal a relationship among these variables, where more active Instagram use, coupled with more intense usage, ultimately corresponds to positive effects—specifically elevated levels of self-esteem and well-being.

Keywords: Instagram, active use, self-esteem, well-being, usage patterns

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The proliferation of social media has led many to question its potential consequences on users (de Vries et al., 2017; Johnson & Knobloch-Westerwick, 2017; Lin et al., 2016; McLean et al., 2015; Orben et al., 2019; Orben & Przybylski, 2019; Schemer et al., 2021; Verduyn et al., 2017). Following the rise of image-based social networking sites (SNS), recent research has

demonstrated an association between active SNS use (using SNS to connect with others, rather than compare individuals, also known as passive SNS use) and positive user outcomes—such as higher levels of reported subjective well-being and lower levels of loneliness (Grieve et al., 2013). This research postulates that active SNS engagement results in the generation of social capital—enabling users to feel more connected with one another. Similarly, research shows that users who engage with SNS content more “intensely” often experience positive user outcome as they feel more connected to their online community (Ellison et al., 2007). Considering the existing literature, we posit that intensity of Instagram use will mediate the association between active Instagram use and user outcomes—specifically user self-esteem and well-being.

Active SNS Usage, Intensity of Use, and Social Capital

To date, there is ample existing literature that seeks to elucidate the relationship between social media use and subsequent user effects. While some scholars have argued that certain forms of social media use can result in positive outcomes, such as enhanced levels of social capital (Ellison et al., 2007) and social connectedness (Verduyn et al., 2017), others have argued that social media use can result in negative outcomes, such as elevated levels of depression and other mental health challenges (Lin et al., 2016; Rasmussen et al., 2020; Zhao & Zhou, 2020), problematic smartphone use (Hinojo-Lucena et al., 2020), and dissatisfaction with one’s body resulting in dietary restraint (McLean et al., 2015). Even further, other scholars have argued elsewhere that the effect

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sizes of social media effects are relatively small and merely contingent on analytic measures employed by researchers (Orben et al., 2019; Orben & Przybylski, 2019). Thus, while there are mixed conclusions regarding the impact of social media on users (Lin et al., 2016; Orben et al., 2019; Orben & Przybylski, 2019; Rasmussen et al., 2020; Verduyn et al., 2017; Zhao & Zhou, 2020), we have chosen to focus on its impact specifically on self-esteem and well-being.

Research frequently attributes positive user outcomes with the generation of social capital. Social capital refers to the benefits afforded from an individuals' relationships or social network, such as a sense of belonging or social connectedness (Verduyn et al., 2017). One action that has been proven to generate social capital is user intensity, defined as strength of emotional connection to SNS content. Specifically, Ellison et al. (2007) found that intense Facebook use is often able to predict increased levels of maintained social capital among users. Thus, the more emotionally connected a user feels to a platform, the more positive the user outcomes (Ellison et al., 2007; Verduyn et al., 2017).

Verduyn et al. (2017) articulate how different SNS usage patterns, particularly active or passive use, often result in divergent user outcomes. Notably, active use has been associated with more positive user outcomes—whereas passive use often results in deleterious ones. Active behaviors may include uploading a picture onto Instagram, “liking” someone else’s content, or commenting on another user’s post. Similar to intense usage, this form of engagement often results in the generation of social capital and social connectedness, leading to enhanced positive user outcomes such as self-esteem and subjective well-being among users. In contrast, passive use refers to the monitoring of other people’s lives without directly engaging with other users, which often leads to deleterious user effects, such as reduced levels of self-esteem (Verduyn et al., 2017).

Considering the existing literature (Ellison et al., 2007; Grieve et al., 2013; Verduyn et al., 2017), intensity of use may serve as a potential mediating factor in the relationship between active use and user outcomes. Considering the tenets of social capital theory, intensity of active use should enhance social capital among users—thus resulting in more positive user outcomes as users feel more connected with one another. The following hypotheses are proposed to assess the impact that intensity has on the relationship between active Instagram use and user outcomes:

Hypothesis 1: Higher levels of active Instagram use will be associated with increased levels of self-esteem, with intensity as a mediating variable.

Hypothesis 2: Higher levels of active Instagram use will be associated with increased levels of well-being, with intensity as a mediating variable.

Method

Procedure and Sample

Undergraduate students from colleges and universities throughout the United States were recruited through Facebook and Instagram posts. Undergraduate students at a New England university were also recruited in exchange for extra credit. Data collection occurred during the first 6 months of 2018. The only criterion for

inclusion was that all respondents needed to be current undergraduate college students. A total of 411 questionnaires were submitted by participants, with 359 usable responses. The remainder were excluded due to incomplete data. This study was approved by the university’s Institutional Review Board.

Active Use Measure

The Passive and Active Use Measure was selected to measure respondents’ different types of Instagram use (Gerson et al., 2017). The measure was adapted to reflect Instagram activities. Active and passive items were then divided into two separate scales. Respondents’ final scores were the sum of the five items. Active use scores ranged from 5 to 25 ($M = 15.03$, $SD = 3.89$, Cronbach’s $\alpha = .73$). While data on passive use were collected from the study’s questionnaire, the results are beyond the goals of this study and did not contribute to explaining our hypotheses.

Instagram Intensity

The Intensity Scale was adapted from a study by Ellison et al. (2007) to reflect the functions of Instagram rather than those of Facebook. The scale was adopted based upon arguments made by Ellison et al. (2007) that more intense Facebook use resulted in greater reported levels of social capital. The measure includes self-reported assessments of Instagram behaviors through Likert-scale attitudinal questions designed to measure the extent to which respondents are emotionally connected to Instagram. This connection was measured through specific items, such as “Instagram is part of my everyday activity,” “I am proud to tell people I’m on Instagram,” and “I feel out of touch when I haven’t logged onto Instagram for a while.” The scale also asked respondents to indicate how many followers they had on the platform as well as how much time they spent on the platform. Scores ranged from 8 to 44 ($M = 32.74$, $SD = 7.58$, Cronbach’s $\alpha = .83$).

Self-Esteem

The Rosenberg Self-Esteem Scale was used to measure self-esteem levels (Diener et al., 1985). Participants were instructed to indicate their level of agreement with 10 statements on a 5-point Likert scale. Examples of statements within this scale include: “I feel that I am a person of worth” and “I feel I do not have much to be proud of” (reverse coded). Scores ranged from 11 to 40 ($M = 31.01$, $SD = 5.71$, Cronbach’s $\alpha = .89$).

Well-Being

The Satisfaction with Life Scale was administered to gauge respondent well-being. It was selected because the scale has proven to accurately measure the two components of subjective well-being, affect and life satisfaction, exemplifying the measure’s reliability (Verduyn et al., 2015). The scale includes five Likert-scale items designed to gauge respondents’ beliefs about their own life. Examples include “the conditions of my life are excellent” and “if I could live my life over, I would change almost nothing.” Scores ranged from 5 to 35 ($M = 25.11$, $SD = 5.89$, Cronbach’s $\alpha = .86$).

Data Analysis

All data were cleaned and processed using SPSS. Haye's (2013) PROCESS macro was used to perform mediation analyses to address Hypotheses 1 and 2. In terms of hypothesis testing, we accepted a maximum α of .05 to determine statistical significance ($p < .05$). To avoid concerns regarding multicollinearity, we first ensured the Variance Inflation Factor (VIF) among our predictor variables fell below five per guidance offered in the existing literature (Belsley et al., 1980; Mason & Perreault, 1991).

Data Availability

The raw data are available through OpenBU and can be accessed through the following link: <https://hdl.handle.net/2144/42224>. The scales and measures used during data collection are available in the Supplemental Materials section ("Open Materials").

Results

Of the 359 usable responses, 122 were male (34%) and 236 were female (65.7%). One respondent preferred not to disclose their gender (0.3%). The average age was 20.06 years. Most participants reported having at least 801 followers ($n = 189$, 52.6%) and spent roughly 31–45 min per day on Instagram ($n = 97$, 59.6%). Descriptive measures and correlations are provided in Table 1. There was a significant correlation between active Instagram use and intensity of use ($r = .55$, $n = 359$, $p < .001$). However, multicollinearity between these two predictors was small (VIF = 1.43; Belsley et al., 1980; Mason & Perreault, 1991).

Hypothesis 1

The first hypothesis predicted that there would be a positive relationship between active Instagram use and levels of user self-esteem, mediated by intensity. It was supported. First, Pearson's product-moment correlation was run between active use and self-esteem. The results indicate that there is a positive correlation, albeit weak, between active Instagram usage and user levels of self-esteem, $r(356) = .13$, $p = .017$. Second, to consider a mediation relationship, a simple mediation analysis with ordinary least-squares path analysis was conducted (Hayes, 2013). Results indicated a significant indirect effect of active use on self-esteem through intensity. Those who identified as more active users used social media more intensely, $a = 1.07$, $t(357) = 12.41$, $p < .001$, 95% CI [0.90, 1.24], and those who used social media more intensely had higher self-esteem, $b = 0.10$, $t(356) = 2.14$, $p = .033$, 95% CI [0.01, 0.19]. A confidence interval around the indirect effect, $ab = 0.11$, generated using a bias-corrected collection of 10,000 bootstrapped,

samples did not intersect with zero, 95% CI [0.0004, 0.22]. The total effect of active use on self-esteem, accounting for the mediation of intensity of use, was significant, $c = .19$, $t(357) = 2.40$, $p = .017$, 95% CI [0.03, 0.34]. The direct relationship between active use and self-esteem was not significant, $c' = 0.08$, $t(357) = 0.84$, $p = .401$, 95% CI [-0.10, 0.26]. This suggests that intensity is a mediator between active use and self-esteem. More information and model summaries are provided in Table 2, as well as in Figure S1 in Supplemental Materials.

Hypothesis 2

The second hypothesis predicted that there would be a positive relationship between active Instagram use and levels of user well-being, mediated by intensity. It was supported. To analyze this relationship, a Pearson's product-moment correlation indicated that there is a positive correlation, albeit weak, between active Instagram usage and user levels of well-being, $r(356) = .15$, $p = .004$. A second simple mediation analysis with ordinary least-squares path analysis was conducted (Hayes, 2013) to consider the mediating role of intensity of use in the relationship between active Instagram usage and well-being. Results indicated a significant indirect effect of active use on well-being through intensity. Those who identified as more active users used social media more intensely, $a = 1.07$, $t(357) = 12.41$, $p < .001$, 95% CI [0.90, 1.24]. Furthermore, those who used social media more intensely had higher reported levels of well-being, $b = 0.16$, $t(356) = 3.38$, $p < .001$, 95% CI [0.07, 0.26]. A confidence interval around the indirect effect, $ab = 0.17$, generated using a bias-corrected collection of 10,000 bootstrapped, samples did not intersect with zero, 95% CI [0.054, 0.30]. The total effect of active use on well-being, accounting for the mediation of intensity of use, was significant, $c = .23$, $t(357) = 2.92$, $p = .004$, 95% CI [0.08, 0.39]. The direct relationship between active use and well-being was not significant, $c' = 0.06$, $t(357) = 0.62$, $p = .54$, 95% CI [-0.12, 0.24]. This suggests that intensity serves as a mediator between active use and well-being. More information and model summaries are provided in Table 3, as well as in Figure S2 Supplemental Materials.

Discussion

The present study provides evidence that the ways in which young adults engage with online content have the ability to significantly impact how they feel about themselves afterward. Specifically, our results indicate that intensity serves as a mediating variable in the relationship between active Instagram use and both self-esteem (Hypothesis 1) and well-being (Hypothesis 2). The results of the present study expand much of the existing literature pertaining to social capital theory, as we illustrate that active Instagram usage, coupled with high intensity of use, are slightly associated with positive user outcomes. Building upon social capital theory, our findings illustrate that the relationship between Instagram use and user outcomes such as self-esteem and subjective well-being is much more complex than has been previously explained in the existing literature.

Our results reveal that the more intensely users engage with Instagram, the higher their self-esteem and the higher their subjective well-being. This implies that perhaps the more intensely users engage with the platform, the more they feel as though they are a part

Table 1
Means, Standard Deviations, and Correlations

Variable	<i>M</i>	<i>SD</i>	1	2	3	4
1. Active instagram use	15.03	3.89	—			
2. Intensity of use	32.74	7.58	.55**	—		
3. User self-esteem	31.01	5.71	.13*	.16**	—	
4. User well-being	25.11	5.89	.15**	.23**	.59**	—

* $p < .05$. ** $p < .01$.

Table 2
Effect of Intensity of Use on User Self-Esteem

		Consequent						
Antecedent	Direction of relationship	<i>M</i> (Intensity)			Direction of relationship	<i>Y</i> (Self-Esteem)		
		Coefficient	<i>SE</i>	<i>p</i>		Coefficient	<i>SE</i>	<i>p</i>
<i>X</i> (active use)	<i>a</i>	1.07	0.09	<.001	<i>c'</i>	0.08	0.09	.401
<i>M</i> (intensity)		—	—	—	<i>b</i>	0.1	0.05	.033
Constant	<i>i</i> ₁	16.65	1.34	<.001	<i>i</i> ₂	26.55	1.43	<.001
		<i>R</i> ² = .30			<i>R</i> ² = .03			
		<i>R</i> = .53 ^a			<i>R</i> = .05			
		<i>F</i> (1, 357) = 153.96, <i>p</i> < .001			<i>F</i> (2, 356) = 5.20, <i>p</i> = .006			

^a Hayes (2013) cautions against reporting and weighing effect sizes heavily in mediation analyses as simulation research indicates accurate effect sizes are only achieved using very large sample sizes. Both standardized and unstandardized effect sizes are reported here for the reader's discretion.

of the community and have greater levels of social connectedness. Without this intensity, perhaps users fall into more passive usage behaviors, which have been connected to higher levels of depression and lower levels of well-being (de Vries et al., 2017; Krasnova et al., 2013; Verduyn et al., 2017). While the present study is primarily concerned with the impacts of active Instagram use on user effects, the data do indicate slight relationships between passive use and these outcomes—where passive Instagram use was positively correlated with user self-esteem, $r(359) = .13$, $p = .016$, and well-being, $r(359) = .19$, $p < .001$. Thus, future research may benefit from analyzing the relationship between lack of intensity and passive Instagram use. Furthermore, given the various flaws with survey research, future work may benefit from more direct behavioral observations, either through experiments or interviews, to uncover the effects of social media use on participants.

As with all empirical projects, the present study is not without limitations. Due to the nature of our research, it is impossible to assert causality in the relationships reported here, beyond what social capital theory would suggest. Furthermore, our models report weak effect sizes that could suggest minimal effects of the mediation on self-esteem and well-being. Furthermore, it is important to note that Hayes (2013) questions the use of effect sizes to interpret mediation models that use smaller sample sizes as smaller samples may skew the accuracy of the calculated measure. With this in mind, it is important to caution the reader of these results in our analysis. One additional limitation of this study was the incorporation of the Passive and Active Use Measure. This scale was selected to gauge

whether respondents were active or passive users. However, it is evident that these categories are not mutually exclusive. Users can be both active and passive—even during the same online session (Trifiro & Gerson, 2019). Thus, it is impossible to divide respondents into mutually exclusive groups. Future research may be dedicated to developing a measure designed to analyze the frequency and intensity of use of specific social media usage patterns.

As described, the existing literature pertaining to the effects of social media use is quite conflicted. To this end, the present paper argues that existing work in this area has largely overlooked the mediating role of intensity of use in the relationship between social media usage patterns and user outcomes. Considering the core arguments offered by social capital theory, it is possible that an individual's desire to belong to a community motivates them to engage more actively on social media, thereby resulting in higher levels of self-esteem and well-being.

In conclusion, the findings presented here expand upon the existing literature pertaining to social capital theory, illustrating that intensity of use mediates the relationship between usage patterns and user outcomes. This relationship is particularly interesting for avid social media users, as it indicates that there is a slight association with how one engages with platforms and how they feel afterward. Thus, these findings could be of particular use to users, parents, educators, and even social media platforms themselves.

Considering the conflicted nature of the existing literature, it is possible that prior work in this area has only been focused on a handful of variables that can impact user outcomes. Thus, future

Table 3
Effect of Intensity of Use on User Well-Being

		Consequent						
Antecedent	Direction of relationship	<i>M</i> (intensity)			Direction of relationship	<i>Y</i> (well-being)		
		Coefficient	<i>SE</i>	<i>p</i>		Coefficient	<i>SE</i>	<i>p</i>
<i>X</i> (active use)	<i>a</i>	1.07	0.09	<.001	<i>c'</i>	0.06	0.09	.538
<i>M</i> (intensity)		—	—	—	<i>b</i>	0.17	0.06	.033
Constant	<i>i</i> ₁	16.65	1.34	<.001	<i>i</i> ₂	26.55	1.43	0
		<i>R</i> ² = .30					<i>R</i> ² = .05	
		<i>R</i> = .53					<i>R</i> = .04	
		<i>F</i> (1, 357) = 153.96, <i>p</i> = .000					<i>F</i> (2, 356) = 10.11, <i>p</i> = .000	

work could benefit at a more thorough analysis of what other variables may influence the relationship between social media usage and user outcomes in an effort to provide a more comprehensive perspective of what factors impact this relationship.

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