

Comparison of Student Health and Well-Being Profiles and Social Media Use

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ABSTRACT. Recently, social media and social networking sites (SNS) have become increasingly accessible and popular, especially among college students. However, it remains unclear as to the effects associated with this increased SNS use on users' health and well-being (e.g., social, mental, physical). As such, the current study examined the well-being of different SNS users across 5 platforms (i.e., Facebook, Snapchat, Instagram, Marco Polo, LinkedIn) among college students ($N = 630$). Participants completed an online questionnaire assessing daily use of these SNS and health-related constructs in social, mental, and physical domains. Results suggest that users of image-based SNS (i.e., Snapchat) showed the most deficits and users of video-based (e.g., Marco Polo) and professional (e.g., LinkedIn) SNS had the best well-being profiles. However, regardless of SNS platform used, increased total daily SNS use was related to worse outcomes. As such, use of certain types of SNS platforms may be more harmful to user well-being than others, although causal directionality remains unclear.

Keywords: social media, social networking, well-being, health, technology

Recently, social media and social networking sites (SNS) have become increasingly accessible and popular, especially among college students. SNS include a variety of platform types ranging from general broadcast services (e.g., Facebook) to messaging services that send content directly to a specific recipient or group (e.g., Marco Polo). Moreover, SNS can be used virtually anywhere, anytime and by anyone, with a recent estimate that every 7 out of 10 Americans use social media regularly (Lenhart, 2018), which is especially high among young adults (i.e., between 18–30 years of age). Indeed, estimates indicate more than 88% of young adults are using SNS, are more likely to use multiple SNS, and are spending as many as 3 hours a day doing so (Lenhart, 2018; Wright et al., 2017). Although SNS offer improved capacities for communication around the world, recent research has highlighted negative effects on individuals' health and behavior (e.g., Huang, 2010; Twenge, Joiner, Rogers, & Martin, 2017).

Given these findings, there is an imperative need to investigate these relationships.

Although daily time spent on social media (e.g., Song et al., 2014; Wright et al., 2017) has been identified as a central factor, little is known about the relationships between specific SNS use (e.g., Facebook, Instagram) and health-related outcomes (e.g., physical, mental, social). Whereas some studies have suggested that SNS use is associated with health outcomes like subjective well-being (e.g., Stead & Bibby, 2017; Tromholt, 2016) or loneliness (e.g., Pittman & Reich, 2016), research has yet to shed light on unique well-being outcomes associated with specific SNS platform use, particularly among college students. As such, the purpose of the current study was to address this research gap by examining a range of health-related and well-being outcomes (e.g., depressive symptoms, loneliness, anxiety) among specific SNS platform (i.e., Facebook, Instagram, Snapchat, Marco Polo, LinkedIn) users in a college student sample.

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Social Networking Sites and Health Among Young Adults

Despite the rapid changes in technology and SNS use during the past decade (Lenhart, 2018), it is already well-documented that SNS use, typically operationalized as daily time spent on SNS, is associated with numerous negative health-related outcomes (e.g., Song et al., 2014; Tromholt, 2016). According to Huang's (2010) displacement hypothesis, the availability and accessibility of SNS can seem a more convenient mode of human interaction and take time away from face-to-face interpersonal interactions. Indeed, social interactions through SNS could be more attractive initially but less satisfying and unable to fulfill personal needs due to their potential lack of authenticity, producing health and well-being deficits. As such, spending more time on SNS may foster an illusion that social needs are being met when these interactions may not supply all the benefits afforded by in-person interactions.

In support of this, the loneliness construct provides a strong example. Numerous studies have found a positive relationship between perceived loneliness and time spent on SNS (e.g., Song et al., 2014), especially among college students (e.g., Lou, Yan, Nickerson, & McMorris, 2012; Wright et al., 2017). This is rather perplexing considering that a major purpose of SNS is to connect socially with others, which should reduce perceptions of feeling alone or socially disconnected. However, this positive relationship between SNS use and loneliness lends support to the idea that SNS use may provide a more convenient, but less fulfilling or meaningful, medium for social interaction. Directional causality is still a point of debate (Lou et al., 2012), although it is likely bidirectional as those who are lonely seek out comfortable social interactions online and those who spend more time online are likely to withdraw from more traditional face-to-face interaction (Nowland, Necka, & Cacioppo, 2017).

Other well-being constructs related to SNS use, particularly within the young adult population, include depressive and anxiety symptoms, although studies vary in the strength of the relationship (e.g., Primack et al., 2017; Twenge et al., 2017). For example, in one study of over 500,000 U.S. adolescents (Twenge et al., 2017), those who spent more time on social media were more likely to report depressive symptoms and suicide-related outcomes than those who spent more time interacting with others directly (e.g., in-person social interaction, sports, attending religious services). Moreover, in

a large nationally representative sample of 1,787 U.S. young adults, those who reported using the highest number of social media platforms (7–11) were more likely to present both depressive and anxiety symptomology (Primack et al., 2017).

Finally, well-being (i.e., life satisfaction, mood), perceived stress, and overall health appraisals are related to SNS use. Not surprisingly, those who self-report spending more time on SNS each day typically also report lower well-being than those who spend less daily time on SNS (e.g., Stead & Bibby, 2017; Tromholt, 2016). This may be due to increased time on SNS taking time away from other activities that may engender improved subjective well-being such as exercise, productive pursuits (e.g., work, education), or direct social interactions. Related to anxiety, perceived life stress has been consistently linked to use of SNS (e.g., Vanman, Baker, & Tobin, 2018), and other studies have shown a positive correlation between poor physical health appraisal and symptomology with increased SNS use (e.g., Dibb, 2019). Taken together, these findings suggest major mental, social, and physical health disturbances coinciding with increased daily combined SNS use, and raise the question regarding effects of specific SNS on user health and well-being.

Specific Social Networking Sites and Health

The most recent Pew Research Center statistics on social media use in the United States (Lenhart, 2018) suggest that the most common SNS are Facebook (68%), Instagram (35%), Snapchat (27%), and LinkedIn (25%), which would suggest that daily use of these SNS would have a stronger potential for impact on health and well-being outcomes with discernable main effects. Moreover, categorization of SNS by the primary mode of communication has been helpful in prior investigations where the distinction has been drawn between those SNS platforms that are primarily text-, image-, or video-based (e.g., Pittman & Reich, 2016). Facebook, the most researched of all SNS, is primarily text-based and broadcasted to a wide audience of "friends." Increased Facebook use has been specifically linked to many health-related outcomes including loneliness (e.g., Song et al., 2014), low subjective well-being (e.g., Tromholt, 2016), poor health behaviors (e.g., Dibb, 2019), and high perceived stress (e.g., Vanman et al., 2018), although some studies suggest positive outcomes like emotional support (Ellison, Steinfield, & Lampe, 2007).

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Related to more image-based SNS like Instagram and Snapchat, studies have found contradictory findings with both negative and positive outcomes. For instance, in one study by Pittman and Reich (2016), Instagram and Snapchat use found improved subjective health outcomes for those who use these sites compared to text-based platforms (e.g., Facebook). They argued that this may be due to image based SNS offering a more intimate or “real” forum in which to interact, which produces less loneliness and improved subjective well-being. Behaviors on specific platforms may also make a difference, as Instagram interaction and browsing, in one study, was related to improved well-being compared to those who broadcasted and made social comparisons with others online (Yang, 2016). However, in a longitudinal study, Frison and Eggermont (2017) determined that Instagram browsing predicted subsequent depressive mood, suggesting a causal relationship between Instagram use and poor well-being.

Even less research has been conducted to date on the well-being of users of other professional SNS such as LinkedIn or those that are more video-based such as Marco Polo. However, one study found a clear reduction in depressive symptomology among those who used video chat SNS compared to e-mail, other social media, and instant messaging at a two-year follow-up (Teo, Markwardt, & Hinton, 2019). The researchers argued that this more “real-time” video interaction on SNS fosters a greater sense of connection with others and corresponding health benefits. However, it remains unclear what unique well-being outcomes may be associated with professional and video-based SNS.

Current Study

In sum, the current literature regarding the well-being of users of specific SNS, including college students, is limited in terms of a small quantity and mixed findings. Thus, this study was an exploratory examination of college student health-related and well-being outcomes between: (a) the specific SNS users and the respective daily use of each SNS (specific platform comparisons) and (b) users of these separate platforms compared to nonusers (user and nonuser comparisons). As such, we conducted a study among college students (typically heavy users of SNS), focusing on Facebook, Instagram, Snapchat, Marco Polo, and LinkedIn due to their popularity and contrasting characteristics.

Method

Participants and Procedure

Following institutional review board approval (on March 20, 2018), we investigated health-related and well-being outcome differences between different SNS among students at a large Intermountain West university using a questionnaire administered through an online survey platform (Provo, UT; Qualtrics). A convenience sample was solicited among students taking psychology courses at the university including General Psychology and Health Psychology. Upon providing their informed consent, student participants were offered either course or extra credit, and all participants were entered in a gift card drawing. Data were collected during the month of May 2018, resulting in a total of 630 participants who completed the online survey, which took a median of 11.3 minutes ($M = 64.10$; $SD = 426.72$). The sample was primarily comprised of young adults ages 18 to 23 with a mean age of 21.89 ($SD = 3.39$), where most participants were women (63%), White (82.8%), and single (56.6%).

Measures

Social media. Daily time spent on social media during the past month was assessed using a single item where participants indicated how much combined time they spent on all social media each day during the past month on a sliding scale from 0 to 10 hours. Participants identified SNS they used including Facebook, Instagram, Snapchat, Marco Polo, and LinkedIn (which were selected due to their popularity and contrasting differences within the general and this student population) and how much time they spent each day on each platform. Participants responded to six questions about their attitudes toward social media (Wright et al., 2017; $\alpha = .86$) on a 7-point Likert-type agreement scale (1 = *strongly disagree*, 7 = *strongly agree*) so that greater values indicated a stronger positive attitude toward social media in general.

Physical and mental well-being. Overall subjective health was evaluated using the single-item EuroQol Fifth Dimension (Kind, Brooks, & Rabin, 2005), so participants rated their own health on a Likert-type scale from 0 (*worst physical health*) to 100 (*best physical health*). Affect was captured using an 8-item measure of mood on a 5-point Likert-type scale (1 = *not at all*, 5 = *extremely*) regarding how much a mood adjective described their mood over the past month along positive (i.e., happy, alert, enthusiastic, relaxed; $\alpha = .68$) and negative (i.e., sad, irritable, bored, nervous; $\alpha = .66$) dimensions (see Wright et al., 2017). Acute depressive symptoms during the past week were assessed using the CES-D 5-item measure (Bohannon, Maljanian, &

Goethe, 2005) on a 4-point scale (1 = *rarely or none of the time*, 4 = *most or all of the time*, $\alpha = .76$). Anxiety over the past 3 months was assessed using a 4-item measure on a 5-point frequency Likert-type scale (1 = *never*, 5 = *very often*) from Butz & Yogeewaran (2011; $\alpha = .85$). Satisfaction with life was captured using the 5-item Satisfaction With Life Scale (Diener, Emmons, Larsen, & Griffin, 1985) on a 7-point Likert-type agreement scale (1 = *strongly disagree*, 7 = *strongly agree*, $\alpha = .87$).

Social well-being. Using the same 7-point scale as the Satisfaction With Life Scale, social support measurement included eight items (Wood, Read, Mitchell, & Brand, 2004; $\alpha = .71$) and loneliness during the past month was assessed using the 3-item Short Loneliness Scale (Hughes, Waite, Hawkey, & Cacioppo, 2004) on a 5-point Likert-type frequency scale from 1 (*never*) to 5 (*all of the time*; $\alpha = 0.84$). Social integration (i.e., in-person social interactions) was examined using an 8-item measure adapted from Twenge et al. (2017) on a daily frequency scale ($\alpha = .73$). Finally, a single item examining subjective social standing among their college student peers was asked on a Likert-type scale from 0 (*worst standing in the student community*) to 100 (*best standing in the student community*).

Data Analysis

We reported the results from correlation and independent-samples *t*-test analyses and, given concerns about statistical significance being unsuitable as the sole statistic in reporting relationships, we included Cohen's *d* effect size coefficients, focusing on those that are $\geq .20$ (at least a small effect size).

Results

Participants reported a daily average time spent on all social media of 2.22 hours ($SD = 1.81$) and using an average of 2.64 ($SD = 1.01$) SNS (of the five surveyed). In order of popularity, Facebook was most used ($n = 552$, 91.1%), followed by Instagram ($n = 416$, 68.6%), Snapchat ($n = 391$, 64.5%), LinkedIn ($n = 137$, 22.6%), and then Marco Polo ($n = 102$, 16.8%). A large majority ($n = 513$, 84.7%) of respondents used more than one SNS, although 72 (13%) reported only using Facebook, seven (1.7%) only used Instagram, eight (2%) only used Snapchat, four (2.9%) only used LinkedIn, and two (2%) only used Marco Polo. Among Facebook users, daily average time spent on Facebook was 1.28 hours ($SD = 1.26$) or 55.90% of their total daily social media use time; Instagram users were 1.30 hours ($SD = 1.26$) or 50.58% of their total time; Snapchat users were 1.27 hours ($SD = 1.54$) or 50.20% of their total time; LinkedIn users were 0.37 hours ($SD = 0.41$) or 18.23% of their total time;

and Marco Polo users were 0.42 hours ($SD = 0.46$) or 19.27% of their total time. Finally, women spent significantly more time (hours) on social media daily ($M = 2.49$, $SD = 1.87$) than men ($M = 1.73$, $SD = 1.58$; $p < .001$) and, in particular, more time on Instagram ($M = 1.41$, $SD = 1.33$; $M = 0.93$, $SD = 0.96$; $p < .001$; respectively) and Snapchat ($M = 1.38$, $SD = 1.63$; $M = 0.94$, $SD = 1.24$; $p < .01$; respectively), suggesting greater exposure to social media in general and to image-based SNS than men.

Specific platform comparison analyses. Means, standard deviations, and comparisons between the specific SNS across all study variables using independent-samples *t* tests are presented in Table 1. LinkedIn users were significantly older than all other social media platforms and social media attitudes were the strongest for Instagram users compared to Marco Polo, LinkedIn, and Facebook users. Marco Polo users were significantly less lonely, exhibited fewer depressive symptoms, and had higher life satisfaction than Snapchat users. Finally, LinkedIn users reported feeling a significantly greater sense of social standing among their college student peers than Snapchat, Instagram, and Facebook users. As such, it seems Snapchat users, at least among college students, may be more susceptible to negative health-related outcomes and Marco Polo users may be capitalizing on positive health-related outcomes, compared to users of other social media.

As the next step in our analyses, Table 2 displays the correlations between daily time spent on a specific SNS and the study variables. In general, these results suggest that more daily time spent on social media is associated with more detrimental outcomes (e.g., loneliness, negative mood) and the number of social media platforms used was related to more positive outcomes (e.g., social integration, perceived peer support). Although more daily Facebook and Instagram use was related to lower well-being, greater use of LinkedIn was associated with improved well-being, and increased Snapchat and Marco Polo daily use was not systematically related to any of the health-related variables. Thus, whereas increased daily social media use is associated with negative outcomes, each of the specific platforms demonstrated unique associations.

Users and nonusers difference analyses. Next, we examined users of specific SNS in comparison to all those who did not use that platform in a series of independent-samples *t* tests (see Table 3). Our results of the analyses examining age, number of SNS platforms, and social media attitudes produced some significant ($p < .001$) results. First, compared to nonusers, Instagram and Snapchat users were each younger by about 2 years (both d s = .48) and LinkedIn users were older by nearly 2 years ($d = .45$).

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TABLE 1

Means, Standard Deviations, and Comparisons Between Social Media Platform Users

Variable	Facebook <i>M(SD)</i>	Instagram <i>M(SD)</i>	Snapchat <i>M(SD)</i>	LinkedIn <i>M(SD)</i>	Marco Polo <i>M(SD)</i>	Difference Between Platforms [†]	Cohen's <i>d</i> ^{††}
Daily Time Spent on App	1.28 (1.26)**	1.30 (1.26)**	1.27 (1.54)**	0.37 (0.41)	0.42 (0.46)	FB, IG, and SC higher than LI and MP	.99 to .75
Age	21.95 (3.29)	21.38 (3.23)	21.30 (3.01)	23.20 (4.42)*	21.93 (3.29)	LI was higher than all other platforms	.50 to .32
Social Media Attitude	3.32 (1.38)	3.56 (1.35)**	3.51 (1.33)**	3.20 (1.50)	3.19 (1.28)	IG and SC were higher than LI and MP	.28 to .24
Number of SNS	2.74 (0.99)	3.08 (0.79)	3.12 (0.79)	3.34 (1.05)**	3.56 (0.98)**	MP and LI had more than FB, IG, and SC	.83 to .24
Loneliness	2.74 (0.97)	2.72 (0.95)	2.79 (0.95) [†]	2.68 (1.01)	2.57 (0.93)	SC higher than MP	.23
Social Integration	0.33 (0.19)	0.35 (0.20)	0.35 (0.20)	0.31 (0.18)	0.32 (0.17)		
Peer Support	5.03 (0.87)	5.10 (0.82)	5.08 (0.83)	5.09 (0.80)	5.18 (0.74)		
Subjective Overall Health	77.68(14.82)	78.02(14.92)	77.59(15.25)	77.42(14.96)	79.65(14.06)		
Positive Mood	3.52 (0.66)	3.52 (0.66)	3.51 (0.66)	3.63 (0.65)	3.60 (0.63)		
Negative Mood	2.74 (0.75)	2.75 (0.75)	2.81 (0.77)	2.68 (0.80)	2.71 (0.71)		
Depressive Symptoms	9.09 (3.17)	9.20 (3.18)	9.43 (3.32) [†]	8.93 (3.16)	8.72 (2.99)	SC higher than MP	.22
Anxiety	2.94 (0.74)	2.95 (0.74)	3.01 (0.74)	2.87 (0.80)	2.86 (0.70)		
Life Satisfaction	5.02 (1.28)	4.98 (1.26)	4.89 (1.29)	5.08 (1.25)	5.18 (1.17) [†]	MP higher than SC	.24
Subjective Social Standing	57.63(24.14)	56.58(24.76)	55.90(24.52)	62.52(23.96)*	60.93(23.13)	LI higher than SC, IG, and FB	.27 to .20

Note. [†] Only those relationships from the independent-samples *t* tests that are statistically significant are presented in this column. If blank, no statistical difference was observed; ^{††} Effect size (Cohen's *d*) is interpreted as such: *d* > .20 is small, *d* > .50 is medium, *d* > .80 is large; A range of Cohen's *d* values are presented when multiple comparisons are evaluated; SNS = Social media and social networking sites, FB = Facebook, IG = Instagram, SC = Snapchat, LI = LinkedIn, MP = Marco Polo.
p* < .05. *p* < .01.

TABLE 2

Correlations Between Daily Time Spent on Each Social Media Platform and Psychosocial Variable

Variable	Entire Sample <i>n</i> = 606		Facebook <i>n</i> = 552	Instagram <i>n</i> = 416	Snapchat <i>n</i> = 391	LinkedIn <i>n</i> = 137	Marco Polo <i>n</i> = 102
	Daily SNS Time (hr)	Number SNS	Daily Time (hr)	Daily Time (hr)	Daily Time (hr)	Daily Time (hr)	Daily Time (hr)
<i>M(SD)</i>	2.22 (<i>SD</i> = 1.81)	2.64 (<i>SD</i> = 1.01)	1.28 (<i>SD</i> = 1.26)	1.30 (<i>SD</i> = 1.26)	1.27 (<i>SD</i> = 1.54)	0.37 (<i>SD</i> = 0.41)	0.42 (<i>SD</i> = 0.46)
Age	-.11**	-.11**	.03	-.15**	-.09	-.05	.01
Social Media Attitude	.48**	.29**	.22**	.31**	.26**	-.04	.14
Number of SNS	.25**	–	.00	-.02	.05	-.03	.06
Loneliness	.18**	.02	.15**	.14**	.10	-.22*	-.08
Social Integration	-.04	.12**	-.10*	.01	.07	-.07	-.03
Peer Support	-.03	.13**	-.03	-.05	-.01	.15	.15
Subjective Overall Health	-.08	-.03	-.07	-.08	.03	.14	-.04
Positive Mood	-.07	.03	-.09*	-.06	.04	.04	.14
Negative Mood	.18**	.05	.11*	.19**	.05	-.10	.20
Depressive Symptoms	.11**	.05	.10*	.08	-.02	-.20*	.11
Anxiety	.13**	.06	.11**	.15**	.03	-.20*	.10
Life Satisfaction	-.15**	-.03	-.08	-.10*	-.08	.16	.07
Subjective Social Standing	-.10*	.02	.00	-.06	.00	.02	-.02

Note. SNS = Social media and social networking sites.
p* < .05. *p* < .01.

Second, users of three platforms reported using significantly ($p < .001$) more social media platforms than those who did not use that specific platform, including Instagram ($d = 1.89$), Snapchat ($d = 1.78$), and Facebook users ($d = 1.38$). Third, regarding social media attitudes, users of Instagram ($d = .72$), Snapchat ($d = .53$), and Facebook ($d = .52$) reported significantly ($p < .001$) higher (more positive) attitudes regarding the importance of social media in their lives. Whereas some specific SNS users showed mostly beneficial well-being differences (i.e., Instagram, LinkedIn, Marco Polo), others displayed more detrimental well-being differences (i.e., Facebook, Snapchat) compared to nonusers of that specific SNS. Overall, Snapchat users seemed to exhibit the most detrimental outcomes, Facebook users trended toward detrimental outcomes, LinkedIn and Instagram users demonstrated the most beneficial outcomes with Marco Polo users trending toward beneficial outcomes, all compared to the respective SNS nonuser counterparts.

Discussion

The purpose of the current study was to address the current lack of information regarding how well-being and health-related outcomes may be linked to the use of different social media and networking sites (SNS) with an exploratory approach among a college student sample, which is a population known for high use of social media (Lenhart, 2018). Our results generally coincided with previous literature findings regarding outcomes associated with the increased daily use of SNS, but we also discovered unique well-being outcomes associated with the use of these specific SNS. Indeed, although increased daily time spent on social media and certain SNS were generally associated with more negative outcomes overall (e.g., loneliness, depressive symptoms, anxiety), these relationships varied according to different SNS platforms and characteristics. Interestingly, video-based and professional SNS platforms were related to improved well-being, although image-based and text-based SNS were not.

First, not surprisingly, daily use of SNS was positively related to social media attitudes and, regardless of the specific SNS used, was associated with more detrimental outcomes (e.g., loneliness, negative affect, anxiety, depressive symptoms), which coincides with many findings in the general literature (e.g., Song et al., 2014; Twenge et al., 2017; Wright et al., 2017). It may be that daily time spent on social media takes time away from other in-person interactions and is not as fulfilling for one's social health needs (Huang, 2010). However, contrary to findings among other young adult samples (e.g., Primack et al., 2017), the number

of SNS used was related to some positive health-related outcomes including social integration and perceived peer support. Among college students and those who use the Internet extensively, an online "presence" by having multiple SNS accounts may increase perceptions of peer acceptance and provide them with topics to discuss with peers during in-person interactions, particularly ones that help foster social (e.g., Facebook) and professional (e.g., LinkedIn) goals. Thus, social media, in this case, may provide a social foundation whereupon relationships with peers can be built and nurtured.

Second, video-based (i.e., Marco Polo) and more professional (i.e., LinkedIn) SNS demonstrated the strongest links to improved well-being. Indeed, the use of videography may promote feelings of social connection and improved well-being beyond typical text and still-frame images through a more authentic social experience (Teo et al., 2019). Furthermore, Marco Polo delivers a message to a specific recipient rather than a post to a general audience, which may foster additional improved well-being and limit unhealthy social comparisons. In fact, direct communication through social media

TABLE 3

Specific Platform User vs. Nonuser Difference *t*-Test Results

Outcome	User <i>M</i> (<i>SD</i>)	Nonuser <i>M</i> (<i>SD</i>)	Δ	<i>t</i> (<i>df</i>)	<i>d</i>	Better?
Facebook						
Loneliness	2.74 (0.97)	2.51 (0.97)	+ .23	1.71(604) [†]	.24	No
Subjective Health	77.68(14.82)	81.19(11.09)	-3.51	1.69(604) [†]	.27	No
Instagram						
Social Integration	0.35 (0.20)	0.28 (0.17)	+ .07	4.50(604) ^{***}	.38	Yes
Peer Support	5.10 (0.82)	4.88 (0.92)	+ .22	3.04(604) ^{**}	.25	Yes
Snapchat						
Loneliness	2.79 (0.95)	2.61 (1.00)	+ .18	2.18(604) [†]	.44	No
Social Integration	0.35 (0.20)	0.28 (0.17)	+ .07	4.19(604) ^{**}	.38	Yes
Negative Affect	2.81 (0.77)	2.60 (0.72)	+ .21	3.28(604) ^{**}	.28	No
Depressive Symptoms	9.43 (3.32)	8.50 (2.82)	+ .93	3.65(604) ^{***}	.30	No
Anxiety	3.01 (0.74)	2.79 (0.77)	+ .22	3.39(604) ^{**}	.29	No
Life Satisfaction	4.89 (1.29)	5.22 (1.24)	- .33	3.00(603) ^{**}	.26	No
LinkedIn						
Positive Affect	3.63 (0.65)	3.49 (0.67)	+ .14	2.10(604) [†]	.21	Yes
Subjective Social Status	62.52(23.96)	55.83(24.48)	+6.69	2.83(604) ^{**}	.28	Yes
Marco Polo						
Loneliness	2.57 (0.93)	2.75 (0.98)	- .18	1.71(604) [†]	.20	Yes
Peer Support	5.18 (0.74)	5.00 (0.88)	+ .18	1.84(604) [†]	.22	Yes

Note. Δ represents difference in user of platform relative to nonusers; Effect size (Cohen's *d*) is interpreted as such: $d > .20$ is small, $d > .50$ is medium, $d > .80$ is large.

[†] $p < .10$. ^{*} $p < .05$. ^{**} $p < .01$. ^{***} $p < .001$.

may improve perceived social support, mood, and cognition through a more realistic social interaction instead of fostering unrealistic comparisons through views of others' posts or comments. Similarly, the motivation to engage with someone directly through video or, in the case of LinkedIn, using an SNS for more professional reasons (e.g., locating a job, speaking with a colleague) rather than for social comparisons, may elicit improved well-being because entertainment or comparison motives are not as salient.

On the other hand, the relationships between text-based (i.e., Facebook) and image-based SNS with negative health-related outcomes (especially Snapchat) suggest a unique effect of these specific platforms on user well-being. Compared to users of other SNS, Snapchat users exhibited greater loneliness, depressive symptoms, anxiety, and lower satisfaction with life, in general, suggesting that there may be something unique to the use of Snapchat or to Snapchat users, in general, that may link them to these outcomes. These findings are contrary to the findings of Pittman and Reich (2016) who found less depressive symptomatology for image-based SNS users (i.e., Instagram). However, one potential interpretation, consistent with social comparison orientation (Buunk & Gibbons, 2006), is that image-based communications may enable social comparisons more readily and, given that people generally post overly positive or "picture perfect" types of images (Cramer, Song, Drent, 2016; Yang, 2016), this may activate negative emotions and cognitions within the users. Moreover, young women in our sample reported greater exposure to image-based SNS, making gender characteristics likely influential on these results. Indeed, young women are more likely to be held to higher social standards of appearance and achievement (MacNeill & Best, 2015) and, as such, experience more negative reactions to image-based platforms where unrealistic and idealized images of women are portrayed and viewed (Sypeck, Gray, & Ahrens, 2004). It is difficult to know, however, since Instagram, another primarily image-based SNS, was associated with some poor health-related outcomes, but also manifested some positive health relationships (i.e., social integration, peer support) compared to other SNS platforms.

Finally, it is important to note two alternative explanations for these observations. First, Snapchat users were younger than users of all other SNS, suggesting that this may have produced well-being deficits because younger people tend to be more unsure and anxious about their future and less socially stable, especially within college settings (e.g., Sears, 1986). However, Instagram users were significantly younger than other users and did not manifest unilateral negative outcomes. Second, it

is possible that those who have preexisting poor health profiles are drawn to certain SNS such that those who desire entertainment, have poor health, or desire social comparisons to others are drawn to image-based platforms like Snapchat and those who are drawn to video-based SNS (e.g., Marco Polo) may already have superior health.

Potential Limitations and Future Research Directions

Implications of this study should be considered in light of potential limitations. First and foremost, the cross-sectional design of this study limits drawing any causal conclusions. However, our large sample did enable us to detect some clear relationships between well-being and specific SNS use. Second, estimates provided of time spent on each SNS could overlap with time spent using other SNS, which limits our ability to link certain health-related outcomes to specific SNS use. Third, we did not query motivations for SNS use, which can impact well-being (e.g., Yang, 2016) and may be an influential factor. Fourth, SNS usage was determined via a single item with the potential for retrospective self-report bias across a 30-day average estimation, and the relatively large number of *t* tests conducted raises concern for Type I error (false positive), although we focused only on those with at least a small effect size ($d \geq .20$). Finally, we only examined five specific SNS, used a college student sample, and might not have included influential control variables, which may limit generalizability.

Future research should investigate the directionality of the relationship between health and SNS use by well-constructed longitudinal, controlled, and experimental research designs. Different populations should be investigated such as adolescents, older adults, and children who are beginning to use social media to ascertain whether relationships for college students are similar or different for these other populations. Building on the idea that motivations for SNS use are an important factor, examining SNS use motivations and additional SNS platforms across an international domain may yield additional interesting cultural contrasts and similarities. Finally, future studies could examine additional health outcomes, especially objectively measured outcomes (e.g., BMI, blood pressure), which are important health indicators within the college student population (e.g., Wright et al., 2018).

Conclusion

In conclusion, the current study sheds light on the important issue of technology use and health, focusing on differences between types of social media and networking sites across a range of health and well-being outcomes. In sum, the main

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conclusions drawn from these findings are that increased daily use of social media has a negative impact on the user well-being, image-based social media (i.e., Snapchat) use is associated with more negative health-related outcomes, and video-based (i.e., Marco Polo) and professional social media (i.e., LinkedIn) use are related to more positive outcomes. As technological advances continue to develop, this area of research inquiry will remain of great importance to researchers and practitioners. As such, it is our desire and hope that future research can build on this to provide additional and valuable understanding of the complicated relationship between technology use and health.

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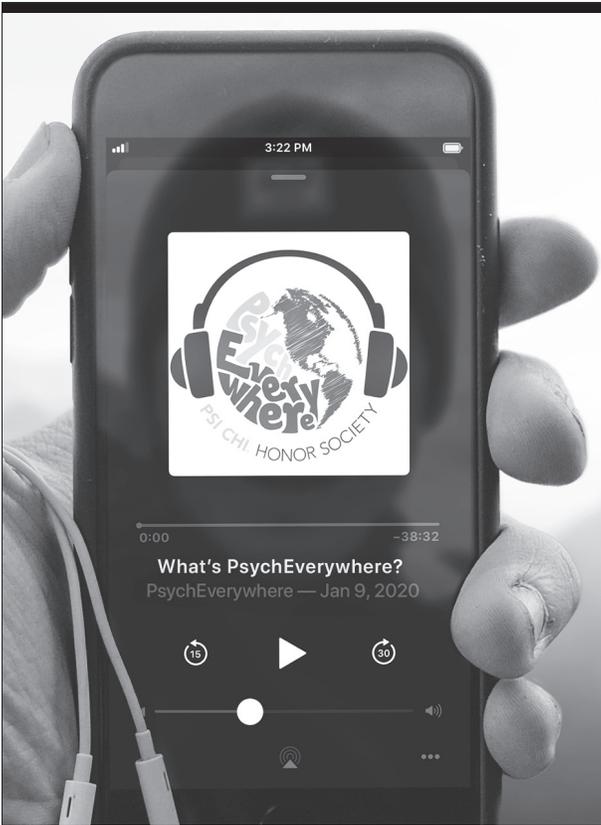
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