

Active Social Media Use and Health Indicators among Sexual and Gender Minority Adults

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Abstract

Purpose: Sexual and gender minority (SGM) individuals may receive social support through using social media actively (i.e., posting, interacting). This study examined associations between active social media use, social support, and health indicators in a large sample of SGM adults in the United States. **Methods:** Data were derived from the 2017 wave of The PRIDE Study, a national cohort study of SGM health. SGM-identified adults reporting social media use (N=5,995) completed measures of active social media use, social support, depressive symptoms, cigarette smoking, hazardous drinking, sleep, and physical activity. Regression models examined main and interactive effects of active social media use and social support on health indicators.

Results: The sample reported a moderate level of active social media use (mean [M]=3.2[1.0], scale=1-5) and relatively high social support (M=16.7[3.3], scale=4-20); 31.8% reported moderate-to-severe depressive symptoms. Participants with greater active social media use were more likely to experience depressive symptoms (adjusted odds ratio [AOR]=1.18, 95% confidence interval [CI] [1.10, 1.26]), cigarette smoking (AOR=1.11, 95% CI[1.01, 1.22]), insufficient sleep (AOR=1.13, 95% CI[1.06, 1.21]), and physical inactivity (AOR=1.09, 95% CI[1.02, 1.15]) than those with less active social media use. Active social media use did not significantly interact with social support to predict any health indicators (p-values>.159). **Conclusion:** Among SGM adults, active social media use was associated with several negative health indicators. Active social media use may increase health risks, or SGM adults with poor health may use social media actively to maintain social connections. Moderate active social media use may be compatible with health.

Introduction

Social media has emerged as a common platform for social interactions with 70% of United States (U.S.) adults reporting social media use.¹ Greater social media use is associated with negative mental and physical health indicators, such as depressive symptoms,² physical inactivity,³ and poor sleep.⁴ Moreover, social media content portraying alcohol and tobacco use in a positive light is abundant and may encourage substance use.⁵⁻⁹ Negative associations between social media use and well-being may be partially explained by factors such as social comparison to idealized versions of others¹⁰ and spending time on social media instead of engaging in more rewarding activities.¹¹

However, social media use is not uniformly negative. Social media can help fulfill social support needs and health-related needs for marginalized individuals.^{12,13} Sexual and gender minority (SGM) individuals face prejudice and discrimination, with negative effects on physical and mental health that may be partially mitigated by social support.^{14,15} Social media may facilitate social support by enabling connection with others who have shared experiences, including those who are geographically distant. SGM individuals may experience greater social capital (i.e., forming and maintaining connections with others) from social media use than their non-SGM peers, but they may experience also greater negative emotions and negative effects on relationships.¹⁶ In sum, positive and negative health-related experiences may accompany social media use among SGM individuals.

The balance of positive and negative health correlates of social media use may be partially determined by the extent to which SGM individuals use social media actively (i.e., posting content or communicating with others, versus passively browsing)¹⁷ and how much social support they perceive themselves to have. Research suggests that active social media use is associated with feelings of social connectedness and subjective well-being.¹⁸ However, individuals with greater-than-average active social media use, who check their social media accounts more frequently and interact with others on social media more frequently than do those with less active use, may experience more benefits from social media use, but also more harms.¹⁹

Health correlates of active social media use have not yet been explored among SGM individuals, for whom support-seeking may be a predominant motivator of social media use.²⁰ Positive interpersonal experiences on social media (e.g., receiving support) may be health-promoting, while negative experiences

(e.g., cyberbullying) may be health-harming.²⁰ SGM individuals with more social support, whether received online or offline, are less likely to have problematic social media use (i.e., addiction-like use patterns²¹) than those with less support.²²

Active social media use itself can lead to social support,^{18,23} and stress is less strongly associated with anxiety symptoms among those who receive more support online.²⁴ Moreover, individuals with high social support may be less likely to draw on social media as a primary source of social support, instead using social media to supplement their offline interactions with their support system.²⁵ Individuals with inadequate social support may be more vulnerable to the harmful effects of active social media use, such as seeking social support on social media and not receiving it, which can be distressing.^{26,27} Feeling unsupported is a component of minority stress experienced by many SGM individuals, and may result in mental health symptoms (e.g., depressive symptoms) and coping strategies that can contribute to poor health (e.g., substance use).^{28,29}

This study aimed to better understand the relationship between active social media use, social support, and well-being among SGM adults. Five health indicators related to well-being were examined: depressive symptoms, cigarette smoking, hazardous drinking, sleep, and physical activity. Data were from The Population Research in Identity and Disparities for Equality (PRIDE) Study, a large, national prospective, longitudinal cohort study of the physical, mental, and social health of SGM adults. We hypothesized an interaction between active social media use and social support on health indicators. Specifically, we predicted that active social media use would be associated with better health indicators among those with higher social support and worse health indicators among those with lower social support.

Methods

Participants and Design

Participants were recruited for The PRIDE Study. The first phase of The PRIDE Study, which began in June 2015, was a community listening phase in which SGM community members shared their priorities and concerns.³⁰ The second phase, a cohort study, began in 2017. Cohort study participants are invited to complete annual surveys and other topic-specific studies by logging on to an authenticated portal through any

web-enabled device. Ongoing community involvement is facilitated by PRIDEnet, a network of individuals and organizations that provide input into the study design, analysis, and dissemination.

Self-identified SGM adults (18 years or older) who reside in the U.S. or its territories can join The PRIDE Study through a secure web platform designed, hosted, and maintained by The PRIDE Study.³¹ Informed consent is obtained from all participants. Recruitment methods include digital and print media, social media, in-person and digital SGM-focused and SGM-serving events, and facilitated contact with SGM people through PRIDEnet's ~32 member Community Partner Consortium, Participant Advisory Committee, and Ambassadors.³² The PRIDE Study and the current analysis were approved by the University of California, San Francisco, Stanford University School of Medicine, and WCG Institutional Review Boards. The present analysis used data from the first wave of the cohort study and included participants who reported using at least one social media platform.

Measures

Social media use. Participants reported whether they had a profile on seven social media platforms popular at the time of the study, selecting all applicable options (Facebook, Google+, Instagram, LinkedIn, Pinterest, Snapchat, Twitter) or "none of these." Participants who selected "none of these" are not included in the analytic sample for the present analysis. To measure active social media use, participants indicated their agreement (1 = completely not true; 5 = completely true) with five items: "I am very active in social networking sites," "I often comment on friends' posts or statuses," "I rarely interact with others on social networking sites" (reverse-scored), and "I am relatively passive in social networking sites" (reverse-scored). A mean score was computed, with higher scores indicating greater active social media use.

Emotional social support. With 4 items, the Patient-Reported Outcomes Measurement Information System (PROMIS) Perceived Emotional Support Scale assesses perceptions of having someone to listen and feeling appreciated (1 = never, 5 = always).³³ Responses were summed with higher scores indicating greater perceived social support.

Health indicators. Depressive symptoms were measured with the Patient Health Questionnaire-9 (PHQ-9); scores of 10 or higher indicated moderate-to-severe depressive symptoms.³⁴ Cigarette smoking was

indicated by having smoked at least 100 cigarettes in one's lifetime (yes/no) and currently smoking "some days" or "every day" (versus "not at all").³⁵ Hazardous drinking was measured with the 10-item Alcohol Use Identification Test (AUDIT);³⁶ scores were dichotomized with scores of 8 or higher indicating hazardous drinking.³⁷ Sleep was dichotomized according to whether participants met minimum National Sleep Foundation guidelines for adults (7 hours per night).³⁸ Physical activity was dichotomized according to whether guidelines were met (150+ minutes per week of moderate activity or equivalent; each vigorous minute equals two moderate minutes).³⁹

Sociodemographic characteristics. Participants self-reported their age, sex assigned at birth (male or female), race (American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or other Pacific Islander, White, another race), and ethnicity (Hispanic or non-Hispanic). Participants were able to select all applicable race, sexual orientation, and gender identity descriptors to allow nuanced description. Sexual orientation descriptors included: asexual, bisexual, gay, lesbian, pansexual, queer, questioning, same-gender loving, straight/heterosexual, another sexual orientation. Gender identity descriptors included: genderqueer, man, transgender man, transgender woman, woman, another gender identity.

Gender was coded with a combination of identity descriptors and sex assigned at birth. Participants who identified exclusively as a man and were assigned male at birth were coded as cisgender men; those who identified exclusively as a woman and were assigned female at birth were coded as cisgender women. Individuals who identified as a man and were assigned female at birth, and/or identified as a transgender man, were coded as transgender men. Individuals who identified as a woman and were assigned male at birth, and/or identified as a transgender woman, were coded as transgender women. Gender-expansive participants identified as genderqueer and/or an unlisted gender identity and may have additionally endorsed binary gender descriptors.⁴⁰ Gender was not coded for the subset of participants who identified only as "man" or "woman" and did not report their sex assigned at birth, as it was not possible to determine whether they were cisgender or transgender.

Statistical Analysis

The analytic sample consisted of individuals reporting use of at least one social media platform ($N = 5,995$); 85 additional survey respondents reported they did not use social media and were excluded from analyses. Five logistic regression models tested the main and interactive effects of active social media use and emotional social support on health indicators (i.e., depressive symptoms, cigarette smoking, hazardous drinking, sleep, and physical activity). Step 1 of each model included several participant characteristics often associated with health: age, race and ethnicity, gender, and sexual orientation. All responses for race and sexual orientation were entered into the models with 0/1 coding (i.e., the participant endorsed the response or did not), as participants could endorse multiple responses for these items. Step 2 of each model included the main and interactive effects of active social media use and emotional social support on health indicators. Analyses were conducted with SPSS 29.0.

Results

Participant characteristics

Participant characteristics (analytic $N = 5,995$) are displayed in Table 1. The sample had a median age of 28.7 years (interquartile range = 14.4); 31.0% were cisgender women, 22.1% cisgender men, 20.4% gender-expansive, 6.9% transgender men, and 3.6% transgender women. Most participants (83.0%) identified as White; 3.3% as Asian, 2.9% as Black or African American, 2.8% as another race not listed, 2.6% as American Indian or Alaska Native, and 0.4% as Native Hawaiian or Pacific Islander. Most participants reported using Facebook (96.3%), Instagram (67.1%), Twitter (62.4%), LinkedIn (61.0%), and Snapchat (52.6%); a minority used Google+ (43.7%) and Pinterest (44.1%). Participants used an average of 4.3 ($SD=1.7$) of the seven platforms listed.

Overall, participants reported moderate active social media use ($M=3.2$, $SD=1.0$) on a scale from low (1) to high (5) active social media use. Social support was relatively high ($M=16.7$, $SD=3.3$; possible score range: 4-20). Nearly one in three participants (31.8%) reported moderate-to-severe depressive symptoms. The most common negative health behavior was physical inactivity (39.9%), followed by insufficient sleep (27.3%), hazardous drinking (14.5%), and cigarette smoking (9.6%). Table 2 shows correlations between measures.

Participants with greater active social media use had significantly greater social support, and most health indicators were modestly intercorrelated.

Active social media use, social support, and health indicators

Table 3 shows associations of active social media use and social support with health indicators, adjusting for age, race, ethnicity, sexual orientation, and gender. Participants with greater active social media use were at greater risk for moderate-to-severe depressive symptoms (adjusted odds ratio [AOR]=1.18, 95% confidence interval [CI] [1.10, 1.26]), cigarette smoking (AOR=1.11, 95% CI [1.01, 1.22]), insufficient sleep (AOR=1.13, 95% CI [1.06, 1.21]), and physical inactivity (AOR=1.09, 95% CI [1.02, 1.15]). Social support was associated with lower risk of moderate-to-severe depressive symptoms (AOR=0.51, 95% CI [0.48, 0.55]), insufficient sleep (AOR=0.71, 95% CI [0.67, 0.76]), and physical inactivity (AOR=0.90, 95% CI [0.85, 0.96]). Social support did not significantly moderate associations of active social media use with any health indicators (p-values>0.159). Tables S1-S5 show full multivariable models, presenting estimates for each variable.

Discussion

Although active social media use often confers benefits, research in the general adult population has identified potential harms.^{18,41} We hypothesized that, among SGM adults, active social media use would be associated with positive health indicators only for those with high social support. Active social media use did not significantly interact with social support to predict health indicators among SGM adults; however, greater active social media use was associated with depressive symptoms, cigarette smoking, insufficient sleep, and physical inactivity.

Previous research found that although young adults with more active social media use experienced more benefits (i.e., greater social support, satisfaction with life, social connectedness, and meaning in life) than those with less active use, they also experienced more harms (i.e., stress, negative affect, loneliness, problematic social media use).¹⁹ The literature similarly suggests associations of intense social media use with both lower and higher well-being, with little evidence to support the view that active social media use is mostly beneficial.^{18,42} Problematic social media use, which can include spending a great deal of time using social

media actively,²¹ has been linked to negative health indicators such as depressive symptoms,⁴³ poor sleep,⁴⁴ and physical inactivity⁴⁵ across diverse populations.

This study identified associations between the same poor health indicators and active—but not necessarily problematic—social media use. Individuals who are highly active on social media may be at risk for health consequences even if their use does not resemble the addiction-like patterns of problematic use. Additionally, we found that greater active social media use was associated with greater odds of cigarette smoking. Meta-analytic evidence suggests that exposure to tobacco-related social media content is associated with tobacco use among youth.⁴⁶ Tobacco-related content is pervasive on social media⁴⁷⁻⁵³ and may also influence adults.

SGM individuals are already at higher risk than cisgender, heterosexual individuals for poor health resulting from marginalization.⁵⁴ This study suggests that SGM individuals who are highly engaged in active social media use may be especially likely to experience poor health indicators, regardless of how much social support they have. Numerous mechanisms may explain associations between active social media use and poorer health indicators, which may be bidirectional.

First, individuals whose social lives largely take place on social media may receive adequate support, but they may have more sedentary lifestyles³ and disrupted sleep⁴ than those with primarily offline social lives. Results suggested an association between active social media use and cigarette smoking, which disproportionately affects the SGM community.⁵⁵ Portrayals of tobacco use on social media may increase adults' beliefs that tobacco use may help them regulate their moods, thereby increasing their risk of tobacco use initiation.⁵⁶ Active social media use, including posting content and interacting with others, can cause depressive symptoms following experiences of rejection, cybervictimization, or insufficient validation.⁵⁷⁻⁶¹ Experiences in SGM-focused social media communities are not always free from discrimination or anti-SGM sentiment.⁶²

Second, individuals with poorer physical and mental health may use social media to maintain social connections when their health limits in-person socializing. For such individuals, active social media use may be positive, enabling them to maintain their social support networks when they would otherwise be unable. For

example, some people with disabilities turned to social media for support during the COVID-19 pandemic to partially offset the doubly isolating effects of disability and pandemic precautions.⁶³ On average, participants with greater active social media use did report greater social support than those with less active use, which may include social support received on social media. Consistent with the literature showing a robust relationship between social support and health,^{64,65} those with greater social support had better health indicators.

Finally, active social media use may be a marker of other risk factors for poor health that were unmeasured in this study. Analyses accounted for participants' age, gender, sexual orientation, race, and ethnicity. Additional characteristics may have affected both active social media use and health indicators.

Contrary to our hypothesis, active social media use did not significantly interact with social support in predicting health indicators. Consistent with prior literature, greater social support was associated with several positive health indicators (i.e., lower risk of depressive symptoms, insufficient sleep, and physical inactivity).⁶⁴ Our measure of social support did not distinguish between online and offline social support. Online and offline support may overlap for most individuals, who communicate with their support system using multiple means, as suggested by moderately strong correlations between the degree of online and offline social support.⁶⁶

People with more offline social support may have healthier social media use because their social media networks are also offline contacts. Social networking with close friends carries a lower risk of harmful social comparison than does social networking with acquaintances.⁶⁷ As the digital world has increasingly melded into daily life, the distinction between online and offline communication may be more difficult for participants to make. This study captured social support holistically, not specific to one communication channel, and aims to provide an overall picture of participants' social support. Effect sizes of active social media use and social support were modest, and closer examination of online social support in relation to health indicators among SGM individuals is needed to better understand the role of online social support in SGM individuals' health.

Strengths, Limitations, and Future Directions

Strengths of this sample include diversity in sexual orientation and gender identities and geographic representation across the United States. There are several noteworthy limitations. First, the survey did not

assess the total time spent on social media or problematic social media use. Survey items also did not differentiate between social support received through social media versus other sources, nor between SGM-specific and non-specific social support. Items measured the extent to which participants have someone with whom they can process feelings or problems and someone who makes them feel appreciated. Future research addressing social media and health among SGM adults could include more fine-grained measures, including items measuring social support for coping with minority stress.

Second, although participants were from across the United States, the sample was not nationally representative and most participants identified as White, thereby limiting generalizability of results. Individuals' multiple identities (e.g., gender identity, sexual identity, race, ethnicity) intersect to influence experiences of marginalization.⁶⁸ Multivariable models in this study suggested that risk of negative health indicators varied across identities. Replication in a sample with greater racial and ethnic diversity is needed to examine interactions of multiple identities on health-related outcomes.

Third, the survey measured seven social media platforms popular at the time of data collection. While most of them are still commonly used, newer platforms (e.g., TikTok) have emerged and become popular.⁶⁹ The image-based and video-based platforms that are currently popular (e.g., TikTok, Instagram, YouTube) may have stronger negative effects on health and well-being than platforms that include text-only posts (e.g., Facebook, Twitter).⁷⁰ Future research with an updated list of social media platforms would be informative. Finally, the cross-sectional, observational study design did not permit causal inference. Active social media use and health indicators may have reciprocal effects on one another, and longitudinal research is needed.

Conclusions

Among SGM adults, active social media use was associated with depressive symptoms, cigarette smoking, insufficient sleep, and physical inactivity, regardless of social support. Active social media use may put SGM adults at risk for poor health indicators, or SGM adults with poorer health may engage in more active social media use to maintain their social connections. A moderate amount of active social media use may enable SGM adults to maintain social support networks without compromising their health. Clinicians providing physical or mental healthcare to SGM adults may inquire about time spent on social media and social support

gleaned from social media and discuss how social media may affect clients' health habits and outcomes. Parents and educators can assist SGM youth in developing healthy social media habits, cultivating social support both online and offline, and leading physically active lifestyles with moderate social media use.

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Contributions

Conceptualization: EAV, AF, MRL, JO, MRC, DER, JJP. Formal analysis: EAV. Writing – original draft: EAV. Writing – review & editing: AF, MRL, JO, MRC, DER, JJP. Supervision: AF, MRL, JO, MRC. Project administration: AF, MRL, JO, MRC. Funding acquisition: AF, MRL, JO.

Conflicts of Interest

Disclosures: Dr. Juno Obedin-Maliver has consulted for Sage Therapeutics (2017), Ibis Reproductive Health (2017-2018, 2020-present), Hims, Incorporated (2019-present), and Folx, Incorporated (2019-present) on topics unrelated to this work. Dr. Lunn has consulted for Hims, Incorporated (2019-present), Folx, Incorporated (2019-2021), Otsuka Pharmaceutical Development and Commercialization, Inc. (2023) on topics unrelated to this work. Dr. Capriotti is on the Clinical Advisory Board of Appa Health and receives honoraria and travel support for talks on behavioral treatment of Tourette Syndrome from the Tourette Association of America. None of these engagements influenced or are pertinent to the work described in this manuscript. Dr. Prochaska has served as an expert witness against tobacco companies in lawsuits and has provided consultation to pharmaceutical and technology companies that make medications and other treatments for quitting smoking.

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Table 1. *Characteristics of a sample of U.S. sexual and gender minority adults who use social media (N=5,995)*

	% (n), M (SD), or median (IQR)
Age (median/IQR) (n=5,987)	28.7 (14.4)
Race ^a	
American Indian or Alaska Native	2.6% (154)
Asian	3.3% (200)
Black or African American	2.9% (172)
Native Hawaiian or Pacific Islander	0.4% (21)
White	83.0% (4,977)
Another race	2.8% (165)
Unreported	11.3% (679)
Indicated multiple races (also included above)	5.8% (347)
Ethnicity	
Hispanic or Latinx	6.5% (389)
Not Hispanic or Latinx	82.4% (4,942)
Unreported	11.1% (664)
Social media platform use	
Facebook	96.3% (5,775)
Instagram	67.1% (4,022)
Twitter	62.4% (3,740)
LinkedIn	61.0% (3,658)
Snapchat	52.6% (3,156)
Pinterest	44.1% (2,641)
Google+	43.7% (2,620)
Sexual orientation ^a	
Asexual	8.5% (910)
Bisexual	23.6% (1,415)
Gay	30.0% (1,798)
Lesbian	20.9% (1,252)
Pansexual	14.3% (857)
Queer	31.2% (1,872)
Questioning	2.9% (175)
Same-gender loving	4.4% (261)
Straight	1.9% (111)
Another sexual orientation	2.7% (162)
Unreported	10.8% (645)
Indicated multiple sexual orientations (also included above)	34.1% (2,046)
Gender identity ^b	
Cisgender man ^c	22.1% (1,326)
Cisgender woman ^d	31.0% (1,861)
Gender expansive ^e	20.4% (1,222)
Transgender man ^f	6.9% (416)
Transgender woman ^g	3.6% (217)
Unreported	10.7% (641)
Indicated multiple gender identities (also included above)	13.4% (805)
Moderate-to-severe depression (N=5688)	31.8% (1,908)
Cigarette smoking (N=5617)	9.6% (576)
Hazardous drinking (N=5589)	14.5% (868)
Insufficient sleep (N=5748)	27.3% (1636)

Physical inactivity (N=5587)	39.9% (2395)
Active social media use (M/SD)	3.23 (1.04)
Emotional social support (M/SD) (N=5770)	16.69 (3.34)

Abbreviations: M = mean; SD = standard deviation; IQR = interquartile range

^a Participants could select multiple response options. Percentages do not sum to 100%.

^b Participants identifying as “man” only or as “woman” only who did not provide their sex assigned at birth (5.2%, n=312) are not included in any of the gender identity categories in this table.

^c Identifies exclusively as a man and was assigned male at birth

^d Identifies exclusively as a woman and was assigned female at birth

^e Identifies as genderqueer and/or an unlisted gender identity

^f Identifies as a man and was assigned female at birth, and/or identifies as a transgender man

^g Identifies as a woman and was assigned male at birth, and/or identifies as a transgender woman

Table 2. *Correlations between active social media use, social support, and health indicators*

	1	2	3	4	5	6	7
1. Active social media use	1						
2. Social support	0.087***	1					
3. Depressive symptoms	0.021	-0.287***	1				
4. Cigarette smoking	0.029*	-0.034*	0.090***	1			
5. Hazardous drinking	0.026	-0.017	0.062***	0.186***	1		
6. Sleep	0.046***	-0.160***	0.189***	0.118***	0.031*	1	
7. Physical activity	0.031*	-0.065***	0.154***	0.043**	-0.040**	0.061***	1

*p < .05

**p < .01

***p<.001

Table 3. Multivariable models of associations of active social media use and emotional social support with health indicators.

	<i>Main effect of active social media use</i>		<i>Main effect of social support</i>		<i>Active social media use X social support</i>	
	AOR [95% CI]	<i>p</i>	AOR [95% CI]	<i>p</i>	AOR [95% CI]	<i>p</i>
Moderate-to-severe depressive symptoms (N=4637)	1.18 (1.10, 1.26)	<.001	.51 (.48, .55)	<.001	1.00 (.94, 1.07)	.962
Cigarette smoking (N=4612)	1.11 (1.01, 1.22)	.036	.94 (.86, 1.03)	.193	1.03 (.94, 1.12)	.559
Hazardous drinking (N=4591)	1.07 (.99, 1.16)	.107	.94 (.87, 1.02)	.153	1.06 (.98, 1.14)	.160
Insufficient sleep (N=4682)	1.13 (1.06, 1.21)	<.001	.71 (.67, .76)	<.001	1.02 (.96, 1.09)	.499
Physical inactivity (N=4556)	1.09 (1.02, 1.15)	.008	.90 (.85, .96)	.001	.97 (.91, 1.02)	.235

Abbreviations: AOR = adjusted odds ratio; CI = confidence interval

Note: Age, race(s), ethnicity, sexual orientation(s), and gender were entered in Step 1 of each model. Main and interactive effects of active social media use and social support were entered in Step 2. Each model included both main and interactive effects of active social media use and social support.