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Canadians' assessments of social media in their lives



by Christoph Schimmele, Jonathan Fonberg and Grant Schellenberg

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Abstract

This study uses the 2018 Canadian Internet Use Survey to examine reports of the negative effects individuals aged 15 to 64 experience because of their use of social networking websites or apps. Social media refers to digital platforms that allow users to create and share content (e.g., text-based posts, photos and videos) and online profiles, and to interact with other users. In 2018, social media was regularly used by about 9 in 10 Canadians aged 15 to 34, 8 in 10 of those aged 35 to 49, and 6 in 10 of those aged 50 to 64.

Six outcomes attributed to social media use are examined: lost sleep, trouble concentrating on tasks or activities, less physical activity, feeling anxious or depressed, feeling envious of the lives of others, and feeling frustrated or angry. Among all social media users aged 15 to 64, around one-fifth reported that in the previous 12 months, they had lost sleep (19%), gotten less physical activity (22%), or had trouble concentrating on tasks or activities (18%) as a result of their social media use. Around one in eight users (12% to 14%) reported feeling anxious or depressed, frustrated or angry, or envious of the lives of others.

Differences in the incidence of these outcomes across social media users in different age groups are of central interest. Compared with social media users in older age groups, larger shares of users in younger age groups report experiencing each of the six outcomes. In part, this reflects greater intensity of social media use among younger individuals, which is measured in terms of number of social media accounts used, number and types of social media activities undertaken, and intensity of smartphone use.

After accounting for these characteristics, younger individuals remained significantly more likely than their older counterparts to report four of the six outcomes. Reports of lost sleep were especially prevalent among individuals aged 15 to 19, and trouble concentrating was especially prevalent among social media users aged 15 to 24. Reports of feeling anxious or depressed or of feeling envious of others were more prevalent among youth, broadly defined in this study as individuals aged 15 to 34. Reduced physical activity and feelings of frustration or anger did not vary across age groups once social media use characteristics were taken into account.

Keywords: internet use, social media, wellbeing, youth

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Introduction

Social networking websites have existed for over two decades, entering mainstream use among younger people by the mid-2000s (Boyd and Ellison 2007). Social media refers to digital platforms that allow users to create and share content (e.g., text-based posts, photos and videos) and online profiles, and to interact with other users. There is a wide range of such platforms, such as Facebook, Instagram, Snapchat, Twitter, LinkedIn, YouTube, Tinder and Flickr. Today, social media use is prevalent across age groups, regularly used by about 9 in 10 Canadians aged 15 to 34 and by about 8 in 10 of those aged 35 to 49. Many Canadians in older age groups also use social media, including 6 in 10 of those aged 50 to 64 and about 1 in 3 seniors.

Social media use presents both opportunities and risks. It creates opportunities for individuals to maintain personal relationships with family and friends (Ellison, Steinfield and Lampe 2007; Keles, McRae and Grealish 2020), connect and interact with extended networks (Boyd and Ellison 2007; Verduyn et al. 2017), and express views and creativity (Keles, McRae and Grealish 2020; Oh, Ozkaya and LaRose 2014). However, there are also risks, with a growing body of research documenting outcomes such as social isolation, loneliness, poor mental health and cyberbullying (Hango 2016; Kelly et al. 2018; Lin et al. 2016; Nesi and Prinstein 2015; Primack et al. 2017; Rosen et al. 2013a; Sampasa-Kanyinga and Lewis 2015; Twenge et al. 2018; Vannucci, Flannery and Ohannessian 2017).

Most studies of these issues focus on adolescents and youth. This reflects concerns about the susceptibility of youth to negative outcomes arising from the intensity and duration of their social media use, the effects social media may have on developmental processes underway throughout adolescence, and from disruption and displacement of in-person contacts and other important activities in the lives of youth. But as highlighted above, social media use is widespread across most age groups, raising questions about the prevalence of various outcomes across the broader population. The objective of this present paper is to document reports of the prevalence of social media outcomes among individuals in different age groups. Previewing the results, youth are more likely to report some outcomes that they attribute to social media, most notably lost sleep and trouble concentrating on tasks and activities, while other outcomes, most notably reduced physical activity and feelings of frustration and anger, are more evenly reported across age groups.

In addition to age, social media behaviours and use patterns, such as duration and purpose of use, have been identified as risk factors associated with various outcomes (OECD 2016; Rosen et al. 2013a; Twenge and Martin 2020; Verduyn et al. 2017). In this study, social media use is measured in terms of number of social media accounts used, the number and types of activities undertaken, and the intensity of smartphone usage. All four factors are strongly correlated with reports of negative outcomes attributed to social media use. An interaction effect between age (i.e., youth) and intensity of social media use is observed for some outcomes, but not others.

The rest of the paper is organized as follows. A literature review provides an overview of major themes and findings from other studies, highlighting age and aspects of social media use as risk factors associated with various outcomes. That is followed by a discussion of data sources and concepts used for this analysis, and a presentation of bivariate and multivariate results. Conclusions and potential directions for further research are presented in the final section.

Literature review

The positive and negative outcomes associated with social media use, and their associated risk factors, have been the subject of considerable research over the past decade—much of which has focused on adolescents and youth, with a growing number of studies examining a range of (mostly negative) outcomes associated with their use of social media.

Age has been viewed as a risk factor for a number of reasons. A comparative lack of self-regulation among children and adolescents may impede their ability to avoid risks such as overuse of social media or use at inappropriate hours (Keles, McRae and Grealish 2020). Both sleep duration and sleep quality have been linked to daily time spent on social media and nighttime use, which tend to be higher among adolescents and young adults than among older individuals (Reid Chassiakos et al. 2016; Woods and Scott 2016). In general, lost sleep has been found to contribute to daytime dysfunction, such as having trouble concentrating (Reid Chassiakos et al. 2016). Furthermore, disrupted sleep has been found to be a key link between the quantity of time that youth spend on social media and depressive symptoms (Kelly et al. 2018; Reid Chassiakos et al. 2016). Disrupted sleep may also be an outcome of poor quality interactions on social media such as exposure to online harassment or bullying, which are also negatively correlated with mental wellbeing (Kelly et al. 2018; Pew Research Center 2018).

The age of social media users also matters as a risk factor for negative outcomes given developmental processes underway through adolescence. Identity formation is one such process and involves social comparison and feedback-seeking (Nesi and Prinstein 2015). Social media is a unique interpersonal environment in this context as it can provide a near-continuous flow of interactions and an immense basis for social comparison and feedback (Vogel et al. 2014). Evidence suggests that social media has increased the influence of peer groups on the wellbeing of adolescents, facilitating and magnifying the effects of self-comparison at this age (Kelly et al. 2018; Seabrook, Kern and Rickard 2016). In addition, users on social media platforms may strive for “positive self-presentation” using flattering images and information about exciting activities, material success and personal accomplishments (Tandoc, Ferruci and Duffy 2015; Verduyn et al. 2015). For browsers, frequent exposure to, and comparison with, such representations can lead to idealized perceptions of other peoples' lives, with increased potential for negative social comparisons and feelings of social deprivation, lower self-esteem and unhappiness (Georges 2009; Nesi and Prinstein 2015; Primack et al. 2017; Tandoc, Ferrucci, and Duffy 2015;). Nesi and Prinstein (2015) report that social comparison poses a greater threat to the mental wellbeing of adolescent girls than boys, possibly because girls place more emphasis on social comparison when assessing their self-worth.

The way that social media use alters social relationships is a related line of inquiry. Twenge, Spitzberg and Campbell (2019) observe that adolescents in the “iGeneration” (those born in the 1990s) are spending less time on in-person social activities than previous generations of adolescents—a change that parallels increases in time spent on digital media. According to Twenge, Spitzberg and Campbell (2019), feelings of loneliness are also comparatively higher among adolescents in the iGeneration, and the highest levels of loneliness are found among youth with low amounts of in-person social contact and high amounts of social media use. This raises questions about the extent to which online social relationships are a source of companionship, emotional sustenance, and social support that contribute to mental health and wellbeing, particularly in the absence of face-to-face interactions (Helliwell and Huang 2013). Other studies have documented a relationship between time spent on social media and negative outcomes, such as increases in depression and anxiety, and declines in reflective thought (Annisette and Lafreniere 2016; Kelly et al. 2018; Kross et al. 2013; Lin et al. 2016; Primack et al. 2017; Rosen et al. 2013a; Sampasa-Kanyinga and Lewis 2015; Twenge et al. 2018; Vannucci, Flannery, and Ohannessian 2017).

Screen time also has implications for physical health, to the extent that social media use decreases time spent on offline activities such as exercise and sports (Twenge, Martin and Campbell 2018). As a sedentary activity, traditional media use (e.g., watching television) is a known risk factor for obesity and health problems (e.g., cardiovascular disease) across the life course (Reid Chassiakos et al. 2016).

Only a handful of studies have explicitly examined gender differences in the association between social media use and wellbeing. Among those that have, the focus has been on mental health outcomes among adolescents, yielding the observation that females are at greater risk than males. For example, Twenge and Martin (2020) report that time spent on social media has a stronger correlation with low psychological wellbeing among adolescent females than males, and Kelly et al. (2018) report that the relationship between time spent on social media and depressive symptoms was stronger for 14-year-old girls than boys, in part, reflecting gender differences in other risk factors such as disrupted sleep, low self-esteem, poor body image, and online harassment.

In addition to age and gender, the ways in which individuals use social media have been examined as risk factors. For example, a distinction has been drawn between “active” use of social media, such as creating and posting content and engaging in online exchanges, and “passive” use, such as browsing profiles or status updates. Passive use of social media has been found to predict depression and self-esteem through processes of upward social comparison (e.g., feeling that other people have better lives) (Tandoc, Ferruci and Duffy 2015; Verduyn et al. 2015; Vogel et al. 2014), while active use may be a source of social capital and connectedness, enhancing wellbeing (Verduyn et al. 2017). Still, causation may run in the other direction. Individuals who are experiencing depression or low self-esteem may be more likely than others to engage in passive activities, and those with higher self-esteem and more positive mental health may be more likely to engage in active ones.

The frequency of social media use—as distinct from duration of use—has been identified as another risk factor (Lin et al. 2016; Primack et al. 2017; Rosen et al. 2013b). Frequency of use refers to behaviours such as the number of social media platforms used on a regular basis or the number of daily “check ins” to follow updates or browse profiles. For many people, smartphones are their primary device for social media (Pew Research Center 2015) and time spent online is difficult to measure given instant and constant connection (Twenge, Martin and Campbell 2018). Consequently, compulsive or habitual use are perhaps more suitable measures for gauging the intensity of social media use. Some studies report that frequent smartphone use can turn into psychological dependency, with high-frequency users experiencing “separation anxiety” when denied access to their devices for as little as 10 to 20 minutes (Cheever et al. 2014; OECD 2016). Elhai et al. (2017) document a positive correlation between habitual use of smartphones and stress, anxiety and depression. With regard to age differences, individuals in the iGeneration tend to check their social media accounts more frequently than those in older generations and report feeling more anxious when not able to do so (Rosen et al. 2013b).

While most studies of social media impacts have focused on negative outcomes, others have documented positive outcomes. Social media is an efficient tool for interacting with friends and relatives, maintaining relationships across distance, and facilitating scheduling and communication among household members. Social networking sites connect individuals with shared interests, values and activities, and enable individuals to interact with extended networks that would be difficult to maintain in an offline context (Boyd and Ellison 2007; Verduyn et al. 2017). Some studies report that having a large number of online contacts predicts higher levels of life satisfaction and self-perceived social integration (Manago, Taylor and Greenfield 2012; Seabrook, Kern and Rickard 2016; Verduyn et al. 2017). Social networking sites can also reduce barriers to social participation (Ellison, Steinfield and Lampe 2007). Several studies have documented correlations between social media and positive outcomes, such as emotional support and diminished social isolation and loneliness (Ellison, Steinfield and Lampe 2007; Keles, McRae and Grealish 2020; Oh, Ozkaya and LaRose 2014).

The themes highlighted in this literature review inform our research design. A range of outcome variables is used, including some pertaining to emotions (e.g., feeling envious of the lives of others) and some with a more physiological emphasis (e.g., reduced physical exercise, lost sleep). The risk factors considered also echo the themes above, with emphasis on outcomes among adolescents and youth, and among individuals who use social media in different ways and with different intensities.

Data and methods

Data and sample

Data for this study are from the 2018 Canadian Internet Use Survey (CIUS). The 2018 CIUS was completed by a nationally representative sample of almost 14,000 Canadians and collected information on their adoption and use of digital technologies. The survey was fielded from November 2018 to March 2019. The survey population includes individuals aged 15 years and older living in the 10 provinces, excluding full-time residents of institutions.

Table 1 provides an overview of CIUS responses to questions on Internet and social media use. Internet use, which is a prerequisite for social media use, is ubiquitous among Canadians under 50 (at over 97%) and highly prevalent among those aged 50 to 64 (at 93%) (Table 1, Column 1). Internet use is lower among seniors (aged 65 or older), at 71%. Among Internet users, over 90% of those aged 15 to 34 regularly use social networking websites or apps, as do 84% of those aged 35 to 49 and 68% of those aged 50 to 64. About one-half of Internet users aged 65 or older are regular users of social media.

Among the population of social media users, those in younger age groups tend to use more social media accounts than those in older age groups. For example, over 50% of those aged 15 to 24 use three or more accounts while this is the case for just 15% of those aged 50 to 64 (Table 1, Column 3). The average number of social media accounts used also declines across age groups (Table 1, Column 4). When asked about the types of social media activities they usually do, individuals under the age of 50 reported an average of 3.3 to 3.6 activities, on a response set comprised of seven options¹ (Table 1, Column 5).

This study is limited to social media users aged 15 to 64. As highlighted above, social media users comprise a far smaller subset of the population of seniors than they do of the population of non-seniors. This reflects greater variability in technology adoption among seniors than non-seniors (Davidson and Schimmele 2019) and a greater degree of selection into the population of interest (i.e., social media users). This is less of an issue among non-seniors, and especially among youth, given the near-ubiquitous nature of social media use among them. For this reason, this study refrains from drawing comparisons across all age groups, with discussion limited to non-seniors. Social media use among seniors warrants focused analysis, but this is left for future work. This analysis is based on just under 6,900 CIUS social media users aged 15 to 64.

1. The response categories were: Keep up to date with the activities of friends and family; Communicate with friends and family; Share or post your own thoughts, pictures or videos with friends and family; Share or post your own thoughts, pictures or videos publicly; Follow current events; Learn about government programs or services; and Other. There is overlap between some of these activities. For example, sharing or posting content for friends and family clearly overlaps with communication with friends and family.

Table 1
Selected Internet and social media characteristics of Canadians aged 15 or older, Canada, 2018

	Percent of people who used Internet in the previous 3 months	Percent of people who regularly use social media ¹	Percent of people who use three or more social media apps or websites ²	Average number of social media apps or websites used ^{2,3}	Average number of activities done on social media apps or websites ²
		percent		number	
Total	91.3	77.6	25.2	1.9	3.3
Male	92.2	73.3	25.3	1.9	3.1
Female	90.5	81.9	25.1	1.9	3.4
Age group (years)					
15 to 19	99.6	92.2	53.3	2.6	3.5
20 to 24	97.7	95.9	50.7	2.5	3.4
25 to 29	99.1	92.8	35.8	2.2	3.6
30 to 34	98.7	91.1	24.6	1.9	3.6
35 to 49	97.3	83.7	19.0	1.8	3.3
50 to 64	92.9	68.3	14.5	1.6	3.0
65 or older	71.2	50.5	5.9	1.3	2.7

1. Percentages are calculated for individuals who used the Internet in the past 3 months.

2. Percentages are calculated for individuals who regularly use social media.

3. Individuals using four or more social media apps or websites are coded as "4" in the calculation of average number of social media apps or websites used.

Source: Statistics Canada, 2018 Canadian Internet Use Survey.

Dependent variables

The outcome variables for this study are drawn from responses to the following question:²

During the past 12 months, did you experience any negative effects in your life because of your use of social networking websites or apps? Select all that apply. Have you:

- Stayed online for longer periods than anticipated
- Lost sleep
- Had less physical activity
- Had trouble concentrating on tasks or activities (e.g., school, work)
- Had relationship issues with friends or family
- Felt anxious
- Felt depressed
- Felt envious of the lives of others
- Felt bullied or harassed
- Felt frustrated or angry
- Other

The vast majority of eligible respondents were able and willing to answer this question, with item non-response less than 3% across the response options. While the question asked respondents about the impacts of social media in their life, implying a causal relationship, the results below are strictly correlational, showing the shares of social media users with various characteristics who selected each response. The 2018 CIUS did not ask

2. The question was asked only of CIUS respondents who had used the Internet in the previous three months and who regularly use social media websites or apps.

respondents about the positive impacts that their use of social media has had in their life. This is a weakness of the questionnaire and a limitation of this study.

Of the 11 responses listed above, 7 are included in this analysis. Lost sleep, trouble concentrating on tasks and activities, and less physical activity are among these. As noted above, physiological impacts are among the concerns expressed regarding social media use among adolescents and youth. Four other responses pertain more explicitly to emotional states: feeling envious of the lives of others, feeling frustrated or angry, feeling anxious and feeling depressed. The last two responses (feeling anxious and feeling depressed) are aggregated into a single measure³ to increase cell counts for population subgroups and improve statistical estimates. Positive responses on feeling anxious or depressed are not equivalent to clinical diagnoses. Overall, these seven variables yield six outcomes.

Considering responses not in the analysis, relationship issues and feeling bullied or harassed were excluded because very small numbers of respondents in most age groups responded in the affirmative, limiting the scope for multivariate estimation. Respondents aged 15 to 19 were most likely to report these outcomes. Analysis focused on this group is warranted to the full extent the data permit. Staying online longer than expected was excluded because it was viewed as a characteristic of social media use rather than an outcome of it.

Independent variables

The shares of social media users who report experiencing these six outcomes are compared across a small set of sociodemographic and social media use variables. Sex and age are included. Age is categorized using 5-year increments from age 15 to 34, and broader 15-year increments from age 35 to 64. These age groups provide the detail needed to identify differences across adolescents and youth, as well as the basis for broader comparisons across the population of non-seniors. As shown in Table 2, 10% to 12% of respondents are in each of the 5-year age categories from age 15 to 19 to age 30 to 34 years. Other sociodemographic characteristics, most notably educational attainment, are not included in the analysis given the emphasis on youth and the fact that many of them have not yet completed their studies.

Four variables pertaining to how individuals use social media are included in the analysis. The first is the number of social media apps or websites that respondents use regularly. The largest share of respondents (41%) regularly use just one social media account, while just over one in four respondents (28%) regularly use three or more (Table 2). As shown in Table 1, the number of social media accounts used is correlated with age.

The second social media variable is whether or not individuals are “intense” smartphone users, defined as individuals who (i) own a smartphone and (ii) report that they check it every 30 minutes or less, and (iii) report that checking their phone is the last thing they do before going to sleep. All other respondents, including those who do not own a smartphone, are classified as “other.” Intense smartphone users comprise about one-third of the sample. Again, this is correlated with age, with 44% of social media users aged 15 to 29 identified as intense smartphone users compared with 18% of those aged 50 to 64.

3. CIUS respondents who said yes to either of these two questions are coded as positive responses on the “Feeling anxious or depressed” outcome.

Table 2
Compositional characteristics of social media users aged 15 to 64,
Canada 2018

	Percent
Sex	
Male	47.6
Female	52.4
Total	100.0
Age group (years)	
15 to 19	9.9
20 to 24	11.0
25 to 29	12.1
30 to 34	11.8
35 to 49	30.3
50 to 64	24.8
Total	100.0
Number of social media accounts	
One	40.8
Two	31.8
Three or more	27.5
Total	100.0
Intense smartphone user	
No	64.1
Yes	36.0
Total	100.0
Keep up with family and friends	
No	18.8
Yes	81.3
Total	100.0
Share content with family and friends	
No	41.7
Yes	58.4
Total	100.0
Share content publicly	
No	73.9
Yes	26.1
Total	100.0
Follow current events	
No	42.4
Yes	57.6
Total	100.0
Number of social media activities	
None	8.1
One	21.5
Two	27.0
Three	26.2
Four	17.3
Total	100.0

Source: Statistics Canada, 2018 Canadian Internet Use Survey.

A set of variables is included to flag specific activities that individuals report they do on social media. These includes using social media to: (i) keep up to date with the activities of friends and family; (ii) share or post their own thoughts, pictures or videos with friends and family; (iii) share or post their own thoughts, pictures or videos publicly; and (iv) follow current events. Designations of “passive” or “active,” as discussed above, are not attached to these activities. Over 80% of individuals use social media to keep up with the activities of family and friends, and almost 60% share their own content (e.g., photos, videos)

with family and friends. These activities are more prevalent among females than males (Table 3).⁴ Just over one-quarter of social media users (26%) share their own content publicly, with those aged 15 to 19 more likely to do so (33%) than those in older age groups. Finally, 58% of social media users follow current events in this way, with those in their twenties and early thirties more likely to do so than those in older age groups.

Lastly, the number of social media activities reported by individuals was summed, yielding a measure with a range of 0 (no activities) to 4 (all activities). As shown in Table 2, 8% of social media users do not do any of these four activities while 17% do all of them. Over 50% do two or three.

Table 3
Percent of social media users aged 15 to 64 who engage in selected online activities, by sex and age group, Canada, 2018

	Percent who use social media to			
	Keep up with family and friends	Share content with family and friends	Share content publicly	Follow current events
		percent		
Total	81.3	58.4	26.1	57.6
Male	75.7	50.7	26.9	56.8
Female	86.3	65.4	25.3	58.2
Age group (years)				
15 to 19	83.8	59.8	32.8	61.8
20 to 24	76.8	56.3	27.9	67.1
25 to 29	84.7	59.9	28.3	65.2
30 to 34	83.3	64.1	26.8	65.5
35 to 49	80.7	60.0	25.8	57.4
50 to 64	80.3	53.2	21.4	44.4

Source: Statistics Canada, 2018 Canadian Internet Use Survey.

Results

Among all social media users aged 15 to 64, around one-fifth reported that in the previous 12 months they had lost sleep (19%), gotten less physical activity (22%), or had trouble concentrating on tasks or activities (18%) as a result of their social media use (Table 4). Around one-in-eight (12% to 14%) reported feeling anxious or depressed, frustrated or angry, or envious of the lives of others.

Table 4 shows the percentages of social media users with a specific characteristic who reported each of these outcomes. For example, 19% of females had trouble concentrating as a result of their social media use compared with 16% of males. To further assess such differences, a logistic regression model was run for each of the six outcome variables. The results are presented as marginal effects in Table 5, interpreted as the percentage point difference in the likelihood of individuals in one category (e.g., female) reporting an outcome relative to a reference group (e.g., male), net of other characteristics in the model. The models also show whether these differences are statistically significant. Returning to our example, females were almost 4 percentage points more likely than males to report they have had trouble concentrating on tasks and activities as a result of their social media use, net of other characteristics in the model (Table 5). Differences of 3 to 4 percentage points are also observed on the likelihood of reporting reduced physical activity and feeling anxious or depressed, and a difference of 7 percentage

4. Within age groups, gender differences are largest in terms of sharing content with family and friends. Among social media users under age 35, the share of females who share content with family and friends is about 18 percentage points higher than the share of males who do so. Among social media users aged 35 to 64, the share of females who share content with family and friends is 12 percentage points higher than the shares of males who do so (data not shown).

points is observed on feeling envious of the lives of others. Reports of lost sleep or feeling frustrated or angry did not differ significantly by sex. Overall, females were more likely than males to report four of the six outcomes considered, with a magnitude of three to seven percentage points.⁵

Across age groups, reports of lost sleep and trouble concentrating vary most. Almost one-half of social media users aged 15 to 19 (47%) reported losing sleep as a result of their social media use, as did 28% of those aged 20 to 24 and 21% of those aged 25 to 29 (Table 4). In short, reports of lost sleep were especially prevalent among teens. Taking social media and smartphone use into account, social media users aged 15 to 19 were 24 percentage points more likely to report lost sleep than their counterparts aged 35 to 49 (Table 5). Reports of trouble concentrating exhibit a similar pattern, with social media users aged 15 to 19 and aged 20 to 24 being 15 to 17 percentage points more likely to report this outcome than their counterparts aged 35 to 49.

Other outcomes were also more prevalent among youth, broadly defined to include individuals in their twenties and early-thirties. Around 20% of social media users under age 30 reported feeling anxious or depressed as a result of their social media use compared with 12% of those aged 35 to 49 (Table 3); multivariate results yield a difference of 5 to 6 percentage points (Table 5). Social media users aged 20 to 34 were also significantly more likely to report feeling envious of the lives of others than those aged 35 to 49, with multivariate results yielding differences of 5 to 9 percentage points.

Finally, reports of other outcomes did not vary as much across age groups. Specifically, reports of reduced physical activity and feelings of frustration or anger were no more prevalent among social media users under age 35 than they were among those aged 35 to 49. Age differences on these outcomes were only evident among social media users aged 50 to 64, who were significantly less likely to report these two outcomes (as well as the other four) than those aged 35 to 49.

5. Gender differences in the prevalence of negative outcomes associated with social media use in the general population are further widened by the fact that larger shares of females use social media than males, at 84% and 76% respectively.

Table 4
Percent of social media users reporting negative outcomes that they attribute to their social media use, Canada, 2018

	Lost sleep	Had trouble concentrating	Had less physical activity percent	Felt anxious or depressed	Felt envious	Felt frustrated or angry
Total	19.3	17.5	22.4	13.8	13.2	12.4
Sex						
Male	19.1	15.5	20.2	11.7	9.4	11.5
Female	19.5	19.3	24.4	15.6	16.7	13.3
Age group (years)						
15 to 19	47.0	36.1	29.5	22.8	18.3	17.7
20 to 24	28.2	33.5	26.2	21.6	24.0	16.8
25 to 29	20.5	24.3	26.1	19.4	19.2	16.9
30 to 34	20.3	17.9	25.6	14.5	18.7	14.7
35 to 49	15.9	12.5	21.5	11.6	10.9	11.7
50 to 64	7.3	5.4	15.7	6.3	3.8	6.0
Number of social media accounts						
One	10.8	9.0	16.6	7.7	6.9	7.3
Two	19.5	17.4	23.7	13.8	13.9	12.9
Three or more	31.7	30.2	29.5	22.7	21.8	19.5
Intense smartphone user						
No	13.3	11.1	17.2	10.5	9.2	9.4
Yes	30.1	29.0	31.8	19.7	20.5	17.8
Keep up with family and friends						
No	13.6	11.0	13.4	9.2	5.5	7.2
Yes	20.6	18.9	24.5	14.8	15.0	13.7
Share content with family and friends						
No	15.2	11.5	15.5	10.1	8.8	7.4
Yes	22.2	21.7	27.4	16.4	16.4	16.1
Share content publicly						
No	16.3	15.0	19.5	11.2	11.1	9.9
Yes	27.7	24.4	30.7	21.0	19.3	19.7
Follow current events						
No	13.9	10.7	17.0	8.9	8.3	7.3
Yes	23.3	22.5	26.5	17.4	16.9	16.3

Source: Statistics Canada, 2018 Canadian Internet Use Survey.

Turning to use of social media, the number of social media accounts regularly used is correlated with the outcomes of interest. This may reflect the intensity of social media use. Some 20% to 32% of individuals who use three or more accounts report experiencing each of the six outcomes, while about 7% to 11% of individuals using just one social media account do so.⁶ The multivariate models yield similar results, with individuals using three or more accounts 4 to 8 percentage points more likely to report each outcome than individuals using just one account. Adjusting for intense smartphone use yields similar results.

Intense smartphone users were more likely than other individuals to report each of the six outcomes. Around 30% of intense smartphone users reported lost sleep, trouble concentrating and reduced physical activity resulting from social media use, and 18% to 21% reported emotion-related outcomes. Among other individuals (i.e., not intense smartphone users), 9% to 13% generally reported these outcomes. Multivariate estimates yield a 10 to 11 percentage point difference in reports of lost sleep, trouble concentrating, and reduced physical activity among intense smartphone users than others, and differences of 4 to 6 percentage points on reports of emotion-related outcomes.

The types of social media activities that individuals engage in are correlated with the likelihood of reporting specific outcomes. Using social media to keep up with the activities of family and friends is correlated with two of the six outcomes, specifically reduced physical activity and feelings of envy, while posting one's own content for family and friends is significantly correlated with three outcomes (Table 5). Posting content publicly and following current events—two social media activities with a more public orientation—are significantly correlated with all or nearly all of the outcomes, with differences ranging from 3 to 6 percentage points. Overall, social media activities that are geared toward family and friends are correlated with fewer reports of negative outcomes than more publicly focused activities.

6. The share of users who report reduced physical activity is somewhat higher, at 17%.

Table 5
Marginal effects of selected characteristics on the probability of social media users reporting negative outcomes that they attribute to their social media use, Canada, 2018

	Lost sleep	Had trouble concentrating	Had less physical activity	Felt anxious or depressed	Felt envious	Felt frustrated or angry
percentage point difference relative to reference group						
Sex						
Male (reference group)	...	...	...	...	...	...
Female	0.8	3.5 **	3.3 *	3.9 ***	7.0 ***	1.4
Age group (years)						
15 to 19	23.5 ***	17.1 ***	4.5	6.4 *	3.2	2.6
20 to 24	7.0 *	15.2 ***	2.0	5.8 *	8.9 ***	2.1
25 to 29	1.1	7.9 ***	1.8	4.9 *	5.1 **	2.7
30 to 34	2.8	3.7 *	2.6	1.7	6.3 ***	1.6
35 to 49 (reference group)	...	...	...	...	...	...
50 to 64	-7.7 ***	-6.3 ***	-3.8 **	-4.6 ***	-6.9 ***	-4.8 ***
Social media accounts						
1 (reference group)	...	...	...	...	...	...
2	3.1 *	2.2	2.1	2.5 *	2.7 *	2.3 *
3 or more	8.3 ***	7.2 ***	3.8 *	7.1 ***	6.2 ***	5.4 ***
Smartphone						
Intense user	10.5 ***	11.0 ***	10.4 ***	4.5 ***	6.3 ***	4.1 ***
Other (reference group)	...	...	...	...	...	...
Keep up with family and friends						
	1.9	1.1	5.3 **	1.0	5.8 ***	1.7
Share content with family and friends						
	0.5	4.7	5.7	0.8	1.4	4.1
Share content publicly						
	5.1 **	1.6	4.1 *	5.2 ***	3.1 *	4.1 **
Follow current events						
	3.6 *	5.7 ***	3.8 *	4.4 ***	3.3 **	5.0 ***

... not applicable

* significantly different from reference category (p < 0.05)

** significantly different from reference category (p < 0.01)

*** significantly different from reference category (p < 0.001)

Source: Statistics Canada, 2018 Canadian Internet Use Survey.

Finally, the four activities above were replaced in the model by the number of social media activities reported by respondents. The number of social media activities was generally correlated with increased likelihood of reporting each outcome; social media users who engage in all four activities were 11 to 18 percentage points more likely to report each of the outcomes than social media users who engage in none of these activities (Table 6).

Table 6
Marginal effects of selected characteristics on the probability of social media users reporting negative outcomes that they attribute to their social media use, Canada, 2018

	Lost sleep	Had trouble concentrating	Had less physical activity	Felt anxious or depressed	Felt envious	Felt frustrated or angry
percentage point difference relative to reference group						
Number of social media activities						
None (reference group)	...	...	...	...	...	...
One	0.9	4.6	1.2	2.6	7.2 ***	3.1
Two	3.6	7.3 **	11.9 ***	4.1	8.5 ***	4.1 *
Three	5.1	13.3 ***	12.6 ***	6.6 **	11.1 ***	10.8 ***
Four	10.7 ***	13.6 ***	17.7 ***	12.1 ***	15.2 ***	14.2 ***

... not applicable

* significantly different from reference category (p < 0.05)

** significantly different from reference category (p < 0.01)

*** significantly different from reference category (p < 0.001)

Note: The model also includes sex, age group, number of social media accounts and intense smartphone usage.

Source: Statistics Canada, 2018 Canadian Internet Use Survey.

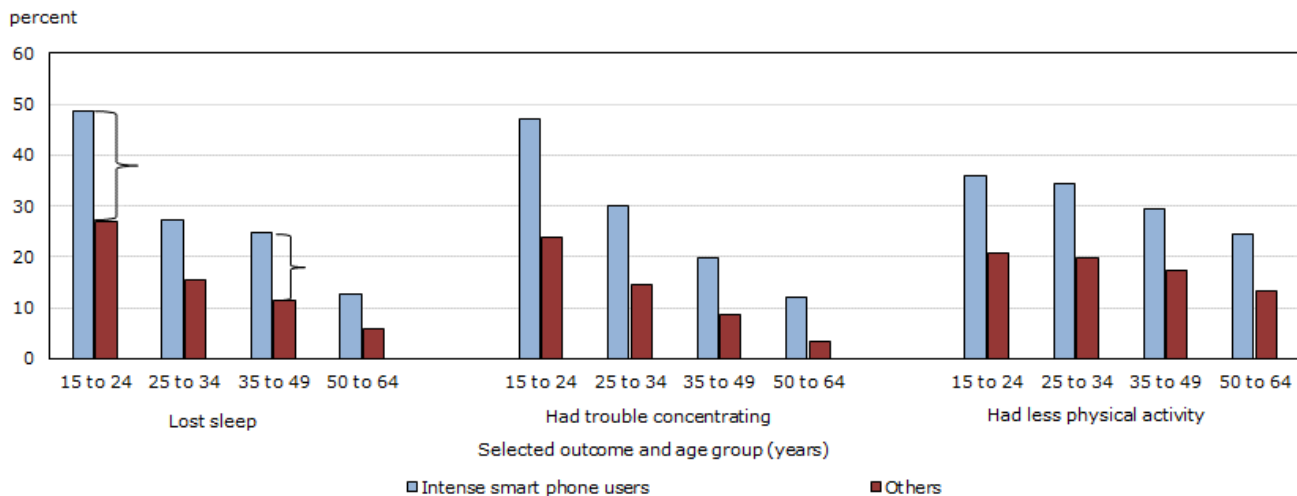
Overall, age and intensity of social media use are strong themes in the literature and in the results above. The relatively high incidence of lost sleep and trouble concentrating among individuals under age 25 stands out, as do reports of anxiety or depression and envy among individuals under age 35 (i.e., youth, broadly defined). Other outcomes, specifically reduced physical activity and feelings of frustration and

anger, do not vary across most age groups of the non-senior population. Furthermore, the correlation between intensity of social media use and each of the outcomes is observed in terms of the number of accounts used, the number of activities engaged in, and whether the respondent is an intense smartphone user.

One question this raises is whether there is an interaction effect between age and intensity of use. That is, does the combination of intense use of social media and youth yield especially strong correlations with each outcome? To examine this, social media users within each age group were disaggregated into those who were or were not intense smartphone users. Respondents under age 35 were grouped in 10-year increments (i.e., 15 to 24 and 25 to 34) to increase sample sizes and strengthen statistical estimates. The shares of individuals in each age and smartphone intensity group reporting each of the six outcomes are shown in Charts 1 and 2.

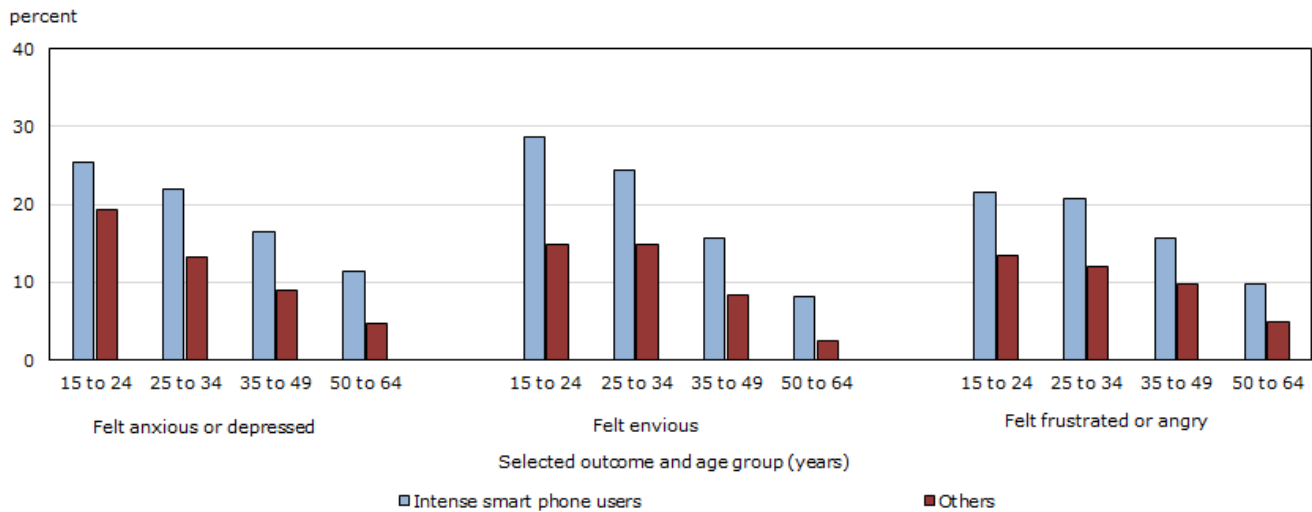
Among social media users aged 15 to 24, intense smartphone users were 22 percentage points more likely than other individuals in that age group to report trouble sleeping, at 49% and 27% respectively (Chart 1). This difference was considerably larger than that observed among social media users aged 25 to 34 and 35 to 49, at 12 to 13 percentage points. Similar results are observed in terms of trouble concentrating. Among social media users aged 15 to 24, 47% of intense smartphone users reported having trouble concentrating compared with 24% of other individuals in the same age group—a difference of 23 percentage points. This difference was far smaller among social media users aged 35 to 49, at 11 percentage points. The interaction of age and smartphone intensity is also observed on feelings of envy. Among social media users aged 15 to 24, intense smartphone users were 14 percentage points more likely than other individuals to report feeling envious of the lives of others, while among social media users aged 35 to 49, the difference between these groups was 8 percentage points.

Chart 1
Percent of social media users attributing selected outcomes to their use of social media, by age group and smart phone use, Canada, 2018



Source: Statistics Canada, 2018 Canadian Internet Use Survey.

Chart 2
Percent of social media users attributing selected outcomes to their use of social media, by age group and smart phone use, Canada, 2018



Source: Statistics Canada, 2018 Canadian Internet Use Survey.

The other outcomes—reduced physical activity, feeling anxious or depressed, and feeling frustrated or angry—were reported by larger shares of intense smartphone users than other individuals. However, the magnitude of the differences between intense smartphone users and others were much the same in younger and older age groups.

Overall, intense smartphone usage among youth yields especially strong correlations with three of the six outcomes considered—lost sleep, trouble concentrating on tasks and activities, and feeling envious of the lives of others—with the likelihood of such outcomes being especially strong among young, high-intensity smartphone users.

Conclusion

Social networking websites have existed for over two decades, entering mainstream use among younger people by the mid-2000s (Boyd and Ellison 2007). This has generated both public and research interest in how social media affects a range of outcomes, with particular concern regarding implications for children, adolescents and youth. This study examines individuals' reports of negative effects in their life resulting from their use of social networking websites or apps. Of central interest are differences in the prevalence of these reported effects across social media users in different age groups, particularly among youth. Results show that compared with older social media users, larger shares of younger users report each of the six outcomes: lost sleep, trouble concentrating on tasks or activities, less physical activity, feeling anxious or depressed, feeling envious of the lives of others, and feeling frustrated or angry. In part, this reflects greater intensity of social media use among younger individuals, measured in terms of social media accounts, social media activities and intensity of smartphone use. Nonetheless, when these factors are taken into account, younger social media users are still significantly more likely than their older counterparts to report four of the six negative outcomes.

Reports of social media use resulting in lost sleep and trouble concentrating are especially prevalent among respondents aged 15 to 24. Indeed, almost half of social media users aged 15 to 19 report loss of sleep as a negative effect of their online activities. Whether this reflects a lack of self-regulation, the amount of sleep needed by adolescents, or other factors, cannot be assessed given the information available from the Canadian Internet Use Survey (CIUS). Still, the prevalence of these two outcomes—particularly among adolescents—is consistent with the literature.

Other negative outcomes attributed to social media use were also most prevalent among youth, broadly defined as individuals under 35 years of age. Reports of anxiety or depression attributed to social media use were more prevalent among individuals under age 30 than among those aged 35 to 49, and reports of feeling envious of the lives of others were more prevalent among those under age 35. These differences remain after adjusting for social media use characteristics across age groups. One implication is that negative outcomes attributed to social media use are not limited to those experienced by adolescents, but are also evident among individuals in their twenties and early thirties. The final two outcomes—reduced physical activity and feelings of frustration and anger—did not vary across age groups once social media use characteristics were taken into account.

As previously highlighted, studies have shown use of social media to be correlated with both positive and negative outcomes. One limitation of this study is that only the latter are considered. A second limitation is that social media use is not assessed against broader measures of wellbeing, such as self-assessed mental health or life satisfaction. These limitations reflect content available on the 2018 CIUS. Looking ahead to subsequent iterations of the survey, the addition of wellbeing measures will offer greater scope to assess the relationships between social media use and both positive and negative outcomes.⁷ The inclusion of additional questions on online and in-person interpersonal relationships, as well as the individual's satisfaction with those relationships, will offer perspective on the extent to which social media yields emotional support and social connections, particularly when in-person contact is limited.

The roles and impacts of social media during the coronavirus (COVID-19) pandemic, as well as the more long-term impacts of the pandemic on technology and its use, will no doubt be important issues. For example, it may be that social media is enabling individuals to sustain supportive personal relationships in the absence of in-person contact. Video calls with one's grandchildren, while not as satisfying as a hug, may do much to bolster wellbeing. A further question is whether COVID-19 will accelerate the adoption of technologies among groups with lower take-up rates, such as seniors. A host of other questions pertaining to issues such as telework, e-learning, misinformation, fraud, social solidarity, trust, and isolation also come to mind.

7. The CIUS will continue to be a cross-sectional survey, with results such as those above continuing to be correlational rather than causal.

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