RESEARCH ARTICLE

The Association of Adolescent Facebook Behaviours with Symptoms of Social Anxiety, Generalized Anxiety, and Depression

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Abstract

Objective: Social media use and especially Facebook use is highly prevalent among adolescents. We study the association of symptoms of social anxiety, generalized anxiety, and depression with behaviours performed by adolescents when logged onto Facebook. **Method:** We surveyed 102 adolescents about social anxiety symptoms using the Leibowitz Social Anxiety Scale for Children and Adolescents and symptoms of generalized anxiety, depression, and general distress using the Mini Mood and Anxiety Symptom Questionnaire. We created a comprehensive Facebook behaviour scale and a Facebook behaviour repetitive scale to measure extent of engagement on Facebook. Multivariate linear regression analyses were used to study predictors from demographics, Facebook characteristics, and symptoms of social anxiety, generalized anxiety, and depression to the outcomes of Facebook behaviour and Facebook repetitive behaviour. **Results:** We found that increased total number of Facebook friends, increased time spent per day on Facebook, and increased anxious arousal symptoms were each significantly associated with increased Facebook behaviour and increased repetitive Facebook behaviour. Social anxiety symptoms, depressive symptoms, and general distress were each not associated with Facebook behaviour and repetitive Facebook behaviour. **Conclusions:** Increased adolescent generalized anxiety symptoms were associated with increased Facebook behaviour and repetitive Facebook behaviour. As adolescent Facebook use is quite prevalent, mental health and primary care health professionals should inquire about adolescent Facebook use and behaviours, particularly when treating those with generalized anxiety symptoms.

Key Words: adolescent, social phobia, anxiety, depression, social media

Résumé

Objectif: L'utilisation des médias sociaux, et en particulier de Facebook, est hautement prévalente chez les adolescents. Nous étudions l'association des symptômes d'anxiété sociale, d'anxiété généralisée et de dépression avec les comportements adoptés par les adolescents lorsqu'ils sont connectés à Facebook. **Méthode:** Nous avons interrogé 102 adolescents relativement aux symptômes d'anxiété sociale à l'aide de l'échelle d'anxiété sociale de Leibowitz pour enfants et adolescents, et aux symptômes d'anxiété généralisée, de dépression, et de détresse générale au moyen du mini questionnaire des symptômes de l'humeur et d'anxiété. Nous avons créé une échelle détaillée des comportements sur

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Facebook et une échelle répétitive des comportements sur Facebook afin de mesurer l'étendue de l'emploi de Facebook. Des analyses de régression linéaire multivariée ont servi à étudier les prédicteurs tirés des données démographiques, des caractéristiques de Facebook, et des symptômes d'anxiété sociale, d'anxiété généralisée et de dépression pour les résultats des comportements sur Facebook et des comportements répétitifs sur Facebook. **Résultats:** Nous avons constaté qu'un plus grand nombre total d'amis Facebook augmentait le temps passé par jour sur Facebook, et que chacun des symptômes accrus d'éveil de l'anxiété était significativement associé à des comportements accrus sur Facebook et à des comportements répétitifs accrus sur Facebook. Les symptômes d'anxiété sociale, de dépression et de détresse générale n'étaient pas chacun associés aux comportements sur Facebook et aux comportements répétitifs sur Facebook. **Conclusions:** Les symptômes accrus d'anxiété généralisée chez les adolescents étaient associés à un comportement accru sur Facebook et à un comportement répétitif sur Facebook. Comme l'utilisation de Facebook par les adolescents est très prévalente, les professionnels de la santé mentale et des soins de première ligne devraient se renseigner sur les comportements sur Facebook des adolescents qui l'utilisent, en particulier lorsque ceux-ci sont traités pour des symptômes d'anxiété généralisée.

Mots clés: adolescent, phobie sociale, anxiété, dépression, médias sociaux

Introduction

One of the most rapid phases of human development occurs during adolescence (World Health Organization (WHO), 2017). Both genes and the environment influence these developmental changes (WHO, 2017). Social media is one environmental factor influencing adolescents, with 92% of those ages 13-17 using social media each day (Lenhart, 2015). Facebook is the most popular social media venue, with 71% of those ages 13-17 reporting use (Lenhart, 2015). The main motives for Facebook use are maintaining relationships, occupying time, and entertainment (Guedes, Nardi, Guimaraes, Machado, & King, 2015; Kuss & Griffiths, 2011; Moreau, Laconi, Delfour, & Chabrol, 2015).

Benefits from the use of social media include early learning, exposure to new ideas and knowledge, and increased opportunities for social contact and support (Chassiakos, Radesky, Christakis, Moreno, & Cross, 2016). Risks of social media use include negative health effects on sleep, attention, anxiety, and depression (Chassiakos et al., 2016; Woods & Scott, 2016). Increased Facebook use can lead to problematic Facebook use with symptoms similar to those of impulse-control disorders and behavioural addictions (Moreau et al., 2015; Blachnio, Przepiorka, & Pantic, 2015).

Social anxiety disorder criteria include a persistent fear of one or more social or performance situations in which the person is exposed to unfamiliar people or to possible scrutiny by others (American Psychiatric Association (APA), 2013). Online interactions are particularly attractive to individuals with social anxiety symptoms since such interactions allow for increased control over self-presentation and the ability to communicate in a low pressure setting with relative anonymity (Shaw, Timpano, Tran, & Joormann, 2015; Wagner, Lipson, Sandy, & Eisenberg, 2014; Hur & Gupta, 2013). Increased adolescent social anxiety is associated with increased Facebook use (Shaw et al., 2015; Lee, 2015). Also, adolescents with social anxiety symptoms were associated with problematic Facebook use and Facebook addiction (Moreau et al., 2015; Lee, 2015; Blachnio et al., 2015; Bodroza & Jovanovic, 2015). With regard to Facebook behaviour, choosing to post certain idealized photos was associated with increased adolescent social anxiety symptoms (Bodroza & Jovanovic, 2015).

Generalized anxiety disorder criteria include excessive anxiety and worry about a number of activities or events with difficulty controlling the worry (APA, 2013). Increased adolescent generalized anxiety symptoms are associated with increased social media use (Woods & Scott, 2016) and Facebook addiction (Hanprathet, Manwong, Khumsri, Yingyeun, & Phanasathit, 2015). Also, Hispanic and African American adolescents had increased generalized anxiety associated with increased Facebook use (Lee, 2014). With regard to Facebook behaviour, greater interactive communication on Facebook like chatting with friends or writing on other's Facebook walls was associated with increased generalized anxiety (Shaw et al., 2015).

Depressive disorder is characterized by markedly diminished interest in all or most activities (APA, 2013). Mixed data exist about adolescent depression and social media/ Facebook use. Some studies show no association (Jelenchick, Eickhoff, & Moreno, 2012; Davila et al., 2012; Blachnio et al., 2015), while others show increased depressive symptoms associated with increased Facebook use and time spent on social media (Lin et al., 2016; Pantic et al., 2012, Kross et al., 2013; Woods & Scott, 2016). Also, adolescents with depressive symptoms are associated with problematic Facebook use and Facebook addiction (Moreau et al., 2015; Lee, 2015; Blachnio et al., 2015; Hanprathet et al., 2015). With regard to Facebook behaviour, passive use (viewing others' Facebook profiles), active content use (posting a photo, updating status), and interactive communication (chatting, writing on walls) were all associated

with increased depressive symptoms (Frison & Eggermont, 2016; Shaw et al., 2015).

The typical adolescent literature on Facebook focuses on use/non-use (Lee, 2014; Lin et al., 2016), with limited research on the many types of possible Facebook use behaviours and their association with social anxiety, generalized anxiety, and depressive symptoms (Bodroza & Jovanovic, 2015; Shaw et al., 2015; Frison & Eggermont, 2016). Furthermore, the adolescent literature ranges from Facebook use (e.g., Lin et al., 2016) to Facebook addiction (e.g., Moreau et al., 2015) without a focus on repetition of common Facebook behaviours. Repetition of Facebook behaviours may better explain the extent of adolescent behavioural involvement with Facebook and any possible association with mental health rather than focusing on more severe Facebook addictive behaviours. We study the association of symptoms of social anxiety, generalized anxiety, and depression and their association with both a comprehensive measure of Facebook use and also a comprehensive measure of Facebook repetitive use. We hypothesize that symptoms of social anxiety, generalized anxiety, and depression would each be positively associated with both Facebook use and repetitive Facebook use.

Methods

Participants
We surveyed 102 adolescents at a suburban safety-net hospital in East Meadow, New York. Participants included 38 early adolescents (12-14 years), 59 middle adolescents (15-17 years), and five late adolescents (18-20 years). Surveys were obtained from pediatric settings (emergency room, inpatient, outpatient) and psychiatry settings (outpatient). Ethical approval was obtained from the hospital Institutional Review Board. As appropriate, assent was obtained from participating minors less than age 18 and informed consent from adolescents and parents of those 18 years and older. Questionnaires were available in English and Spanish. Data were collected from January 2016 through December 2016.

Variables

Demographics
Demographic variables measured were age (years), sex (male/female), race/ethnicity (Caucasian, South Asian, African American, and Hispanic), and born in the United States (no/yes).

Facebook
Facebook social media variables measured were having an active Facebook account (no/yes), total number of Facebook friends, and "in the past week, on average, approximately how much time per day spent have you spent actively using Facebook" (hours).

Anxiety
Social Anxiety
The Leibowitz Social Anxiety Scale for Children and Adolescents is a measure of social anxiety (Leibowitz, 1987). It contains 24 items: 12 items assess social interaction/relationship situations, and 12 items assess performance situations. Items are rated on four Likert-type subscales: 1) anxiety/fear of relationships (12 items) and anxiety/fear of performance (12 items) each ranging from 0=none to 3=severe and 2) avoidance of relationships (12 items) and avoidance of performance (12 items) each ranging from 0=none to 3=usually (Masia-Warner, Storch, Pincus, Klein, Heimberg, & Leibowitz, 2003). Higher scores indicate higher anxiety/fear and avoidance. A sample item for anxiety/fear of relationships and avoidance of relationships is "going to parties, dances, or school activities." A sample item for anxiety/fear of performance and avoidance of performance is "giving a verbal report or presentation in class." This is a reliable measure with Cronbach alpha reliability in the original sample for the four subscales: anxiety/fear relationships=0.92, anxiety/fear performance=0.91, avoidance relationships=0.91, and avoidance performance=0.90. (Masia-Warner et al., 2003). Cronbach alpha reliability in our sample was: anxiety/fear relationships=0.90, anxiety/fear performance=0.90, avoidance relationships=0.90, and avoidance performance=0.90.

Generalized Anxiety
Generalized anxiety was measured with the 10 items from the anxious arousal subscale of the Mini Mood and Anxiety Symptom Questionnaire (Mini-MASQ); Casillas & Clark, 2000). Items were rated on a 5 point Likert-type scale ranging from 1=not at all to 5=extremely, depending on how a person felt or experienced certain topics in the past week. Higher scores indicate higher generalized anxiety. A sample item is "muscles twitched or trembled." This is a reliable measure with Cronbach alpha reliability in the original sample of 0.84 and in our sample was 0.88.

Depressive Symptoms
Depressive symptoms were measured with the eight items from the anhedonic depression subscale of the Mini-MASQ (Casillas & Clark, 2000). Items were rated on a 5 point Likert-type scale ranging from 1=not at all to 5=extremely, depending on how a person felt or experienced certain topics in the past week. Two of these items were measured as positive keyed items and six measured as negatively keyed items. The negative keyed items were reverse coded. A sample positively keyed item is "felt withdrawn from other people." Higher scores indicate higher anhedonic depression. This is a reliable measure with Cronbach alpha reliability in the original sample of 0.85 and in our sample was 0.71.

Distress
General distress was measured with the eight items from the general distress subscale of the Mini-MASQ (Casillas & Clark, 2000), with items that overlap with both anxiety and depressive symptoms. Items were rated on a 5 point Likert-type scale ranging from 1=not at all to 5=extremely, depending on how a person felt or experienced certain topics in the past week. Higher scores indicate higher general distress. A sample item is "felt tense or high strung." This is a reliable measure with Cronbach alpha reliability in the original sample of 0.85 and in our sample was 0.91.

Outcome Variables
There were two outcome variables. The Facebook Behaviour scale measured common Facebook behaviours that are usually done when people log onto Facebook. These behavioural items were obtained from previously published research (Mabe, Forney, & Keel, 2014; Rosen, Whaling, Sab, Carrier, & Cheever, 2013; McCord, Rodebaugh, & Levinson, 2014; Shaw et al., 2015). The Facebook Behaviour Repetitive scale looked at a subset of many of these behaviours that could be repeated.

The Facebook Behaviour scale measured 16 Facebook behaviours that were rated on a Likert-type scale ranging from 1=never to 5=always being done when logging onto Facebook in the past week. These 16 items were the following: 1) posted a photo, 2) posted a status update, 3) commented on another person's status update, 4) commented on another person's photos, 5) clicked on 'like' for another person's status, 6) read another person's status, 7) clicked on 'like' for another person's photo, 8) viewed another person's photo, 9) searched for friends, 10) used Facebook chat, 11) sent messages using the message application, 12) played a game, 13) used the check-in application ('app'), 14) viewed a group, 15) joined a group, and 16) posted in a group. In our study, we chose to separate the "group" activities into three separate behaviours (viewed a group, joined a group, and posted in a group) which were previously used as "view or post in a group" (Mabe. et al., 2014) and "join/create groups" (Rosen et al., 2013). Higher scores indicated higher engagement in these Facebook behaviours. Cronbach alpha reliability in our sample was 0.94.

The Facebook Behaviour Repetitive scale included ten of the above items where we added the phrase of "went back to view it." These items were: 1) posted a photo, 2) posted a status update, 3) commented on another person's status update, 4) commented on another person's photos, 5) clicked on 'like' for another person's status, 6) read another person's status, 7) clicked on 'like' for another person's photo, 8) viewed another person's photo, 9) viewed a group, and 10) posted in a group. Participants were asked to identify how many times in the past week they went back and repeated these behaviours on a Likert-type scale ranging from 0=no repetition to 4=four or more times. Higher scores indicate

more repetitive behaviours. Cronbach alpha reliability in our sample was 0.92.

Statistical Analysis
Descriptive statistics of mean and standard deviation were used to describe the continuous variables with a normal distribution. Median and interquartile range were used to describe the continuous variables with a skewed distribution. Frequency and percentage were used to describe the categorical variables. The outcome variables were Facebook behaviour and repetitive Facebook behaviour. Univariate linear regression analysis compared the predictors to the outcome variables. All variables significantly differing in univariate analyses were included in a multivariate linear regression analysis. Variables with a skewed distribution (Facebook friends and Facebook time) had the value of 1 added to each individual and then logarithmic transformed due to the presence of individuals with the value of 0 which would preclude a logarithmic transformation. All p-values were two-tailed. IBM SPSS Statistics Version 24 (IBM, 2016) was used for all analyses.

Results
Table 1 shows the sample characteristics. The demographic variables included mean age slightly above 15 years; more than half were girls, most were racial/ethnic minorities of either African American or Hispanic origin, and almost three-quarters were born in the United States. For Facebook variables, more than two-thirds had an active Facebook account, the median number of Facebook friends was 100, and median daily use of Facebook was 0.2 hours. For psychosocial variables, anxiety/fear relationships and avoidance relationships each had mean values slightly below mild, anxiety/fear performance and avoidance performance each had mean values slightly above mild, anxious arousal and general distress each had mean values slightly below a little bit, and anhedonic depression had a mean value slightly below moderately. For the outcomes, mean behaviour was slightly above rarely and mean repetitive behaviour was slightly below one time.

Table 2 shows linear regression analyses for Facebook behaviour. In the univariate analyses, increased age, increased total number of Facebook friends, increased time per day on Facebook, and increased anxious arousal were each significantly associated with increased Facebook behaviour. In the multivariate analysis a similar significance pattern occurred for increased total number of Facebook friends, increased time per day on Facebook, and increased anxious arousal while age was no longer significantly associated with Facebook behaviour.

Table 3 shows linear regression analyses for repetitive Facebook behaviour. In the univariate analyses, increased

Table 1. Sample characteristics of 102 adolescents		
Variable	Mean (SD) or Median (IQR)	Frequency (Percent)
Demographics		
Age (years)	15.1 (1.70)	
Sex (girl)		58 (56.9%)
Race/ethnicity		
Caucasian		10 (9.8%)
South Asian		4 (3.9%)
African American		26 (25.5%)
Hispanic		62 (60.8%)
Born United States (yes)		77 (75.5%)
Facebook		
Active Facebook account (yes)		71 (69.6%)
Total number Facebook friends [Median (IQR)]	100.0 (479.50)	
Time per day on Facebook (hours) [Median (IQR)]	0.2 (0.67)	
Psychosocial		
Anxiety/fear relationships	10.6 (8.64)	
Anxiety/fear performance	12.6 (9.45)	
Avoidance relationships	11.0 (8.52)	
Avoidance performance	12.8 (9.34)	
Anxious arousal	17.8 (7.77)	
General distress	14.4 (7.32)	
Anhedonic depression	21.6 (5.97)	
Outcomes		
Facebook behaviour	32.2 (13.97)	
Facebook behaviour repetitive	6.47 (8.30)	

Note: SD=standard deviation, IQR=interquartile range

Table 2. Linear regression analyses for the Facebook Behaviour Scale		
Variable	Univariate B (SE)	Multivariate B (SE)
Demographics		
Age (years)	1.77 (0.80)*	-0.42 (0.60)
Sex (girl)	5.15 (2.76)	---
Born United States (yes)	-3.60 (3.21)	---
Facebook		
Total number Facebook friends	7.68 (0.83)***	6.18 (0.92)***
Time per day on Facebook (hours)	28.65 (4.27)***	14.25 (4.00)**
Psychosocial		
Anxiety/fear relationships	0.12 (0.16)	---
Anxiety/fear performance	0.14 (0.15)	---
Avoidance relationships	0.24 (0.16)	---
Avoidance performance	0.18 (0.15)	---
Anxious arousal	0.46 (0.17)**	0.33 (0.12)**
General distress	0.27 (0.19)	---
Anhedonic depression	0.24 (0.23)	---
Intercept	---	19.8 (8.61)*

Note: B=beta, SE=standard error, Multivariate analysis adjusted R square=0.55
Analyses that combined the small number of Caucasians/South Asians as a reference group for race/ethnicity did not find ny significant association for African Americans or Hispanics.
*p<0.05, **p<0.01, ***p<0.001

total number of Facebook friends, increased time per day on Facebook, increased anxious arousal, and increased general distress were each significantly associated with increased repetitive Facebook behaviour. Born in the United States was significantly associated with decreased repetitive Facebook behaviour. In the multivariate analysis a similar significance pattern occurred for increased total number of Facebook friends, increased time per day on Facebook, and increased anxious arousal while born in the United States and general distress were no longer significantly associated with repetitive Facebook behaviour.

Discussion

We found that increased total number of Facebook friends, increased time spent per day on Facebook, and increased anxious arousal symptoms were each significantly associated with increased Facebook behaviour and increased repetitive Facebook behaviour. Social anxiety symptoms,

depressive symptoms, and general distress were each not associated with Facebook behaviour and repetitive Facebook behaviour.

Social Anxiety
Contrary to our hypotheses, we did not find any association of social anxiety symptoms with either Facebook behaviours or repetitive Facebook behaviours. Previous research reports increased adolescent social anxiety with increased Facebook use (Shaw et al., 2015; Lee, 2015) and problematic Facebook use and Facebook addiction (Moreau et al., 2015; Lee, 2015; Blachnio et al., 2015; Bodroza & Jovanovic, 2015). Our findings are inconsistent with the results of all these studies. We suggest a couple of reasons for the discrepancy. Only two studies used comprehensive Facebook behaviour measures (Shaw et al., 2015; Bodrozan & Jovanovic, 2015) and focused on mostly older adolescents with the youngest age being 15. Furthermore, one of these studies was predominantly female (Bodroza & Jovanovic,

2015). Our study also used a comprehensive Facebook behaviour measure and differs from these studies as our study was largely comprised of younger aged adolescents. Our findings suggest that younger age adolescents do not have any association of social anxiety concerns with increased Facebook use.

Generalized Anxiety
Consistent with our hypotheses, we found that increased anxious arousal symptoms were associated with both increased Facebook behaviour and increased repetitive Facebook behaviour. One study with a comprehensive Facebook behaviour measure reports that greater interactive communication on Facebook like chatting with friends or writing on other's walls was associated with increased generalized anxiety (Shaw et al., 2015). Our findings are similar to this study and these behaviours were also measured in our study. Our study adds that increased anxious arousal symptoms were also associated with increased repetitive Facebook behaviour. This suggests that those with generalized anxiety may not be able to control their worry to the point that they need to regularly go back to view their previous posting behaviour on Facebook.

Depressive Symptoms
Contrary to our hypotheses, we did not find any association of depressive symptoms with either Facebook behaviours or repetitive Facebook behaviours. Also, we did not find any association of general distress with either Facebook behaviours or repetitive Facebook behaviours. Previous studies report mixed findings about adolescent depression and Facebook use with some showing no association (Blachnio et al., 2015), while others report a positive association with certain Facebook behaviours (Frison & Eggermont, 2016; Shaw et al., 2015). Our findings differ from the two studies with comprehensive Facebook behaviour measures (Frison & Eggermont, 2016; Shaw et al., 2015,). We suggest that our study differs because our sample was predominantly non-white while those studies were either all-white or predominantly white. Also, our study adds that depressive symptoms are not associated with repetitive Facebook behaviour.

Facebook Friends and Time on Facebook
We found that increased number of Facebook friends and increased daily time on Facebook were each associated with increased Facebook behaviour and repetitive Facebook behaviours. Number of Facebook friends and time on Facebook are used to measure intensity of Facebook use (Johnston, Tanner, Lalla, & Kawalski, 2013). Our findings

Table 3. Linear Regression Analyses for the Facebook Behaviour Repetitive Scale

Variable	Univariate B (SE)	Multivariate B (SE)
Demographics		
Age (years)	0.77 (0.48)	---
Sex (girl)	3.07 (1.64)	---
Born United States (yes)	-4.25 (1.87)*	-1.50 (1.63)
Facebook		
Total number Facebook friends	2.65 (0.62)***	1.31 (0.64)*
Time per day on Facebook (hours)	14.06 (2.71)***	9.73 (2.92)**
Psychosocial		
Anxiety/fear relationships	0.18 (0.09)	---
Anxiety/fear performance	0.14 (0.09)	---
Avoidance relationships	0.18 (0.10)	---
Avoidance performance	0.15 (0.09)	---
Anxious arousal	0.42 (0.10)***	0.40 (0.12)**
General distress	0.30 (0.11)**	-0.09 (0.13)
Anhedonic depression	0.15 (0.14)	---
Intercept	---	-2.23 (2.55)

Note: B=beta, SE=standard error, Multivariate analysis adjusted R square=0.34
Analyses that combined the small number of Caucasians/South Asians as a reference group for race/ethnicity did not find any significant association for African Americans or Hispanics.
*p<0.05, **p<0.01, ***p<0.001

are consistent with such an approach as measured by our study with Facebook behaviours and repetitive Facebook behaviours.

Study Implications

The American Academy of Pediatrics (AAP) has a policy statement on media use where social media and mental health are discussed regarding social support, depression, and life satisfaction (Moreno, Chassiakos, & Cross, 2016). However, there is no mention about social media and anxiety. Our study shows an association of increased anxious arousal symptoms with increased Facebook use. We recommend that the AAP update their policy statement on media use and mention in the social media and mental health section that generalized anxiety may be associated with increased social media use.

The Canadian Paediatric Society (CPS) lists 11 suggestions for keeping children safe when using social media. This includes that parents should show interest in your child's online activity and ask questions about this online activity. The CPS writes that as this content is only an introduction, they included links to other relevant websites (CPS, 2018). None of the CPS content mentions mental health implications of social media use. We recommend that the CPS highlight that the negative mental health experience of generalized anxiety may be associated with increased social media use.

Clinicians should consider asking about adolescent Facebook use and behaviors. This may help clinicians understand the reason for adolescent anxiety and/or risk factors for adolescent anxiety. Clinical care can be better managed by addressing any social media impact on anxiety. Furthermore, both parents and clinicians should discuss with adolescents that increased Facebook behaviour and repetitive Facebook behaviour could be associated with creating anxious arousal symptoms for them. Parents may also find it helpful to set a daily time limit for adolescent social media usage.

Limitations and Future Research

This study has several limitations. First, we only measured self-reported Facebook behaviour and did not actively track Facebook behaviour. Second, as we had small numbers of

Caucasians and South Asians, the only inferential analysis possible for race/ethnicity was to combine Caucasians and South Asians. It is possible that Caucasians and South Asians have differing patterns. Third, it is possible that the variables that were significant in the univariate analysis but were no longer significant in the multivariate analysis may have occurred due to insufficient statistical power. Future research may find it beneficial to classify Facebook behaviours and repetitive behaviours into categories of general, social, active, and passive Facebook use. Also, future studies should study other features of Facebook like newsfeed and different emoji buttons besides "like" (i.e., love, haha, sad, wow) that can be used in Facebook posts.

Conclusion

In conclusion, increased adolescent generalized anxiety symptoms were associated with increased Facebook behaviour and repetitive Facebook behaviour. As adolescent Facebook use is quite prevalent, mental health and primary care health professionals should inquire about adolescent Facebook use and behaviours, particularly when treating those with generalized anxiety symptoms. We would also strongly recommend both the AAP and CPS to update their social media recommendations to include that generalized anxiety symptoms may occur with increased adolescent social media use.

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