



Adolescent health brief

“Facebook Depression?” Social Networking Site Use and Depression in Older Adolescents

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ABSTRACT

Purpose: To evaluate the association between social networking site (SNS) use and depression in older adolescents using an experience sample method (ESM) approach.

Methods: Older adolescent university students completed an online survey containing the Patient Health Questionnaire-9 depression screen (PHQ) and a weeklong ESM data collection period to assess SNS use.

Results: Participants ($N = 190$) included in the study were 58% female and 91% Caucasian. The mean age was 18.9 years (standard deviation = .8). Most used SNSs for either <30 minutes ($n = 100$, 53%) or between 30 minutes and 2 hours ($n = 74$, 39%); a minority of participants reported daily use of SNS >2 hours ($n = 16$, 8%). The mean PHQ score was 5.4 (standard deviation = 4.2). No associations were seen between SNS use and either any depression ($p = .519$) or moderate to severe depression ($p = .470$).

Conclusions: We did not find evidence supporting a relationship between SNS use and clinical depression. Counseling patients or parents regarding the risk of “Facebook Depression” may be premature.

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Social networking sites (SNSs) are the most popular Internet activity among adolescents [1]. More than 70% of adolescents use SNSs, most commonly Facebook [2]. The American Academy of Pediatrics (AAP) recently released a report on the effects of social media on children and adolescents, suggesting that exposure to Facebook could lead to depression [3]. As depression is a significant cause of morbidity in adolescents [4], and given the pervasiveness of SNS use, a causal relationship could indicate a significant and widespread health risk.

Several studies have evaluated the relationship between Internet use and depression; many have found no association [5–7]. The purpose of this study was to evaluate the association between SNS use and depression in an older adolescent sample.

IMPLICATIONS AND CONTRIBUTION

The social media report by the AAP suggests that SNS use may cause depression in adolescents, a condition termed “Facebook depression.” We evaluated SNS use and depression in an older adolescent sample and found no association. Ongoing work is needed to inform future practice guidelines.

To achieve a rigorous assessment of SNS use, we used an experience sampling method (ESM) approach. ESM studies use multiple real-time assessments conducted over short periods. This approach is ideal for capturing intermittent behaviors, and may reduce recall biases impacting traditional self-report measures [8].

Methods

This study took place between February and December 2011 at a large public Midwest university. Approval was obtained from the relevant institutional review board.

Procedure

Undergraduate students between the ages of 18 and 23 years were recruited from an introductory communications course to complete an online survey. Those who completed the survey received course credit and were invited to participate in the ESM

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phase. During ESM data collection, 43 surveys were administered to each participant over 7 days using text messages sent to and from participants' personal cell phones. Surveys were administered at random intervals between 6 A.M. and 1 A.M. Participants received a \$10.00 incentive for enrolling and an additional \$50.00 for responding to ≥75% of the ESM surveys. A detailed description of the ESM protocol for this study is reported elsewhere [9]. Participants provided written consent before completing the survey and oral consent before the ESM study.

Measures

The online survey contained the Patient Health Questionnaire-9 (PHQ), a validated screening instrument for depression in adolescents [4]. The PHQ rates depression symptoms over the past 2 weeks. PHQ scores range from 0 to 27; scores <5 indicate no depression, between 5 and 9 suggest mild depression, and >9 suggest moderate to severe depression.

ESM surveys asked participants to describe whether they were currently online, how many minutes they had been online, and what they were doing online. Participants indicated their online activities from a predetermined list, including academic work, general browsing, chatting, e-mailing, downloading, SNS use, gaming, and streaming other media.

Statistical analysis

Statistical analyses were performed using SAS software version 9.2 (SAS Institute, Cary, NC). To estimate participants' average daily time spent on SNSs from the ESM data, a multilevel modeling approach was used to capture both within-subject and between-subject variation [10]. This included subject-specific random effects and an autoregressive correlation structure to account for the correlations within each subject between the repeated measures over time. The estimated daily average time spent on SNSs was categorized according to the AAP's media guidelines of high use as >2 hours a day [3]; low use was categorized as <30 minutes; and average use was categorized as 30 minutes to 2 hours.

The associations between SNS use and the probability of experiencing either any depression or moderate to severe depression

Table 2
Logistic regression for reporting depression

Predictive Variables	OR (95% CI)	p value
SNS use	Any depression	0.519
Low vs. average use	1.2 (.7–2.3)	
Low vs. high use	.6 (.2–2.1)	
Average vs. high use	.5 (.1–1.8)	
SNS use	Moderate to severe depression	0.47
Low vs. average use	1.6 (.5–5.3)	
Low vs. high use	.6 (.1–2.4)	
Average vs. high use	.3 (.1–1.9)	
Gender		
Male vs. female	.8 (.3–1.8)	
SNS use × gender interaction		0.707

SNS = social networking sites; OR = odds ratio; 95% CI = confidence interval.

were evaluated using logistic regression analysis. As both SNS use and depression vary by gender [2,4], a gender and SNS use interaction variable was included in the analysis. Additional covariates (age, ethnicity) were evaluated and analyzed in an exploratory manner. Odds ratios (ORs) and the corresponding 95% confidence intervals (CI) were computed to compare the proportions of participants with depression between the SNS use groups.

Results

Of the 373 students enrolled in the targeted class, 273 participants (73%) completed the survey. All participants who completed the survey were invited to enroll in the ESM study; of the 193 students (71%) who participated, three (1.6%) did not respond to any ESM surveys and were excluded from all analyses as nonresponders. Sample characteristics are presented in Table 1.

Among the 190 participants who provided both PHQ and ESM data, responses were received for 93% (95% CI: 92–95%) of the ESM surveys. SNS use was the most commonly reported Internet activity; more than half the time participants were online they reported SNS use (53%, 95% CI: 49%–57%). The estimated daily median time spent on SNSs was 28 minutes, with an interquartile range from 9 to 54 minutes. Most participants reported low ($n = 100$, 53%) or average ($n = 74$, 39%) daily SNS use; a minority of participants ($n = 16$, 8%) reported high use.

No significant associations were observed between SNS use and the probability of reporting any depression ($p = .519$) or moderate to severe depression ($p = .470$). ORs for comparisons between SNS categories are presented in Table 2.

Conclusions

Using a real-time assessment of Internet use and a validated clinical screening instrument for depression, we found no association between SNS use and depression in a sample of older adolescents. Our findings are similar to those from studies of other communication applications, such as e-mail and chat, which also found no association with depression [5,6].

The current study is strengthened by both the rigor of the data collection design and the established validity of the measurement instruments used. However, as a single study cannot prove or disprove an association, replication of our findings across diverse demographic groups is warranted. The current study is limited by the sample's ethnic homogeneity, our focus on older adolescents in a single university setting, and a small

Table 1
Demographic information for 190 study participants

Demographics	M ± SD/n (%)
Age	18.9 ± 8
Gender	
Male	79 (42)
Female	111 (58)
Ethnicity	
Caucasian/white	172 (91)
Hispanic/Latino	6 (3)
Asian/Asian American	5 (3)
African American	2 (1)
Native American/Alaskan native	0 (0)
Multiracial	5 (3)
Depression	
Overall PHQ score	5.4 (4.2)
Depression categories	
None	93 (49)
Mild	66 (35)
Moderate to severe	26 (14)

M = mean; PHQ = Patient Health Questionnaire-9 depression screen; SD = standard deviation.

sample size. It is also important to note that we assessed the association between Internet use and depression symptoms measured at a single time point. Longitudinal studies may provide additional insight into the potential causality of such a relationship.

Nonetheless, our findings have important implications for clinicians. At present, advising adolescent patients or parents on the risks of "Facebook depression" may be premature. Additional research could inform future clinical practice recommendations in this area.

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