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Longitudinal Associations Between Appearance-Related Social Media Consciousness and Adolescents' Depressive Symptoms

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Abstract

Introduction.—Frequent social media use among adolescents is associated with depressive symptoms, though prior work has overwhelmingly used cross-sectional designs and focused on "screen time." Subjective social media experiences, such as the concern with one's physical appearance on social media, may be more relevant to adolescents' depressive symptoms than mere frequency of use. *Appearance-related social media consciousness* (ASMC) is the preoccupation with one's physical attractiveness in social media photos and has been associated with depressive symptoms above and beyond frequency of social media use in prior cross-sectional work.

Methods.—In this brief report, we assessed this association longitudinally over one year within a diverse sample of high school adolescents in the Southeastern U.S. (n = 163, M age = 16.19; 55.8% girls; 50.9% White, 24.5% Black, 28.2% Hispanic/Latinx; 49.7% received free or reduced-price lunch).

Results.—Baseline ASMC was associated with higher depressive symptoms one year later, even when controlling for time spent on social media. Although girls reported higher levels of ASMC, associations were similar for adolescent boys and girls. No evidence was found that heightened depressive symptoms at baseline were associated with higher ASMC one year later.

Conclusions.—The findings highlight the importance of physical appearance concerns on social media—above and beyond frequency of use—in the development of depressive symptoms among adolescents. Implications for future research to examine the role of subjective social media experiences in adolescents' depressive symptoms are discussed.

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Keywords

adolescence; social media; body image; depression

Social media (SM) refers to digital websites and applications that allow for social interaction (Nesi et al., 2018) and is ubiquitous among adolescents in the U.S. (Anderson & Jiang, 2018). Prior work finds that frequent SM use is associated with adolescents' negative mental health experiences, with the majority of research focused on adolescent depressive symptoms (see Ivie, 2020; Odgers & Jensen, 2020; Orben, 2020). However, critiques of this literature include the use of mostly cross-sectional designs and a focus on "screen time"—rather than examining *how* adolescents use SM (Granic et al., 2020; Odgers & Jensen, 2020; Orben, 2020). Among adolescents, frequent SM use is also associated with heightened appearance dissatisfaction (see Saiphoo & Vahedi, 2019), a key risk factor in the development of adolescents' depressive symptoms (e.g., Paxton et al., 2006). However, few studies have examined the connection between adolescents' appearance-related SM experiences and depressive symptoms.

Arguably the most salient feature of SM, the focus on visual content may encourage preoccupation with one's appearance (Choukas-Bradley et al., 2021). This emphasis on physical appearance is especially relevant to adolescents, who are navigating complex new social dynamics such as dating and sexual relationships (Paxton et al., 2005). Attractiveness is also highly correlated with popularity, especially for girls (Mayeux & Kleiser, 2020). *Appearance-related social media consciousness* (ASMC) refers to the persistent concern about looking attractive to a SM audience and is a common experience among adolescents and young adults, especially girls and women (Choukas-Bradley et al., 2019, 2020). ASMC may include imagining how one's SM photos look to others and carefully editing and curating photos before posting them to SM (Choukas-Bradley et al., 2020). Controlling for frequency of SM use, ASMC is cross-sectionally associated with adolescents' higher depressive symptoms (Choukas-Bradley et al., 2020). Despite girls' higher mean levels of ASMC, this prior study found no significant gender differences in the association with depressive symptoms (Choukas-Bradley et al., 2020).

Longitudinal research is necessary to identify the temporal associations between ASMC and depressive symptoms. In a recent review of longitudinal studies examining the link between SM and adolescents' well-being, only two studies examined appearance-related social media behaviors as predictors of well-being (see Course-Choi & Hammond, 2021). These studies found that selective positive self-presentation in photos was related to lower self-esteem (Metzler & Scheithauer, 2017) and that using SM to monitor attractive peers was related to higher self-objectification (Vandenbosch & Eggermont, 2016). Longitudinal associations between SM and mental health are more robust when examining specific, maladaptive SM experiences, rather than screen time, yet validated measures of specific SM experiences are lacking in prior research (Course-Choi & Hammond, 2021). The recently developed ASMC Scale (Choukas-Bradley et al., 2020) provides an opportunity to systematically examine the role of appearance-focused SM experiences in adolescents' development of depressive symptoms.

The Current Study

The current longitudinal study examines prospective associations between adolescents' ASMC and depressive symptoms and explores gender differences in these associations. We hypothesized that higher ASMC at baseline would be associated with higher levels of depressive symptoms one year later. Based on inconclusive prior work, we propose no specific hypotheses about gender differences.

Method

Participants and Procedure

At baseline, participants (n = 163, 55.8% girls) ranged in age from 15 to 18 (M = 16.19, SD = 0.76). Sample demographics were as follows: 50.9% White, 24.5% Black, 28.2% Hispanic/Latinx, 2.5% Asian, and 1.8% other race or ethnicity; 49.7% received free or reduced-price lunch (a proxy for lower socioeconomic status); 79.8% identified as exclusively heterosexual. The small number of individuals identifying as transgender or gender nonbinary (n = 4) precluded the examination of differences between this group and the cisgender groups, thus these participants were not included in analyses.

The initial survey at Time 1 (T1; spring of 2018) included a sample of 226 adolescents recruited at one school in a rural county in the southeastern U.S. At the one-year follow-up at Time 2 (T2; spring of 2019), 74.3% (n = 168) of the original sample was retained. There were no differences between participants who completed one compared to both time-points by race/ethnicity (p = .68), T1 ASMC (p = .41), T1 depressive symptoms (p = .54), or T1 time spent on SM (p = .24). Data were collected as part of a larger study examining the efficacy of sexual health and academic mindset interventions, administered approximately two weeks after the initial assessment (see Widman et al., 2020). Independent samples t-tests showed no significant differences between the two intervention groups for T2 SM use (p = .31), ASMC (p = .87), or depressive symptoms (p = .85), thus we did not consider intervention condition in analyses. Active consent by parents was required. At both time-points, students completed surveys on laptops and received a $10 gift card. Procedures were approved by the Institutional Review Board.

Measures

Social Media Use.—Frequency of SM use was assessed with one question asking how much time, on a typical day, participants spend using any SM, defined as "any apps or websites that involve social interaction, such as Facebook, Twitter, Instagram, or Snapchat." Responses ranged from 0 = *Less than 1 hour* to 10 = *10 or more hours*.

Appearance-Related Social Media Consciousness.—ASMC was assessed with the 13-item ASMC Scale (Choukas-Bradley et al., 2020; e.g., "During the day, I spend time thinking about how attractive I might look when people see pictures of me on SM"), which measures the frequency of individuals' thoughts and behaviors related to an ongoing awareness of their physical appearance on highly-visual SM platforms. Responses ranged from 1 = *Never* to 7 = *Always*. T1 α = .92; T2 α = .93.

Depressive Symptoms.—Depressive symptoms were assessed with the Short Mood and Feelings Questionnaire (SMFQ; Sharp et al., 2006). Participants indicated how true 13 statements (e.g., "I felt miserable or unhappy") were for them in the past two weeks on a scale from 0 = *not true* to 2 = *true*. T1 α = .93; T2 α = .91.

Analysis Plan

A hierarchical multiple linear regression, with depressive symptoms at T2 as the outcome, was conducted. In Step 1 gender, depressive symptoms at T1, and T1 time on SM were entered as predictors in the model. In Step 2 ASMC, and in Step 3, the interaction between gender and T1 ASMC, were entered as predictors in the model. To determine if depressive symptoms predict later ASMC, an alternate model was conducted with T2 ASMC as the outcome and T1 depressive symptoms, gender, T1 time on SM, and T1 ASMC as predictors. Age was not significantly correlated with depressive symptoms or ASMC at either T1 or T2 (*r*s = .03 to −.09, *p*s = .232 to .687), and thus was not included as a covariate. Analyses were conducted in R 3.6.1.

Results

Table 1 shows descriptive statistics and bivariate correlations for all study variables. Girls reported significantly higher ASMC, time spent on SM, and depressive symptoms than boys.

Using hierarchical multiple linear regression, T1 ASMC was significantly positively associated with T2 depressive symptoms, controlling for gender, T1 time on SM, and T1 depressive symptoms (see Table 2). Gender did not moderate the association between T1 ASMC and T2 depressive symptoms, suggesting a similar strength of the association for both boys and girls (Table 2).

The alternate model showed that the association between T1 depressive symptoms and T2 ASMC, controlling for T1 ASMC, gender, and T1 time on SM, was not significant, β = .07, SE = .01, *p* = .208. These findings suggest that higher ASMC precedes adolescents' heightened depressive symptoms.

Discussion

ASMC, or the preoccupation with appearing attractive to a SM audience, may help explain the association between SM use and depressive symptoms for adolescents. In the current study, consistent with cross-sectional findings (Choukas-Bradley et al., 2020), ASMC at baseline was longitudinally associated with adolescents' depressive symptoms one year later, above and beyond time spent on SM. In contrast, results did not suggest that heightened depressive symptoms at baseline was associated with higher ASMC one year later. The current results contribute to a growing body of work highlighting the significant role of adolescents' appearance-related SM experiences, more so than "screen time," in the development of depressive symptomatology (see Choukas-Bradley et al., 2021).

Consistent with prior work, ASMC and depressive symptoms were significantly higher among girls in this sample than among boys (Choukas-Bradley et al., 2019; 2020). Also

consistent with prior work, there were no differences in the association between ASMC and depressive symptoms by gender (Choukas-Bradley et al., 2020). Other work has found that girls report worse negative outcomes related to appearance concerns (Slater & Tiggemann, 2011), including on SM (Stefanone et al., 2010). However, the present results are consistent with assertions that, unlike traditional media, SM may be unique in its similar emphasis on appearance across genders (Manago et al., 2015). Thus, appearance concerns on SM, though higher on average among girls, may be similarly associated with depressive symptoms across gender. These results necessitate more research examining how appearance concerns —once conceptualized as an issue primarily affecting women and girls—may be relevant to the development of depressive symptoms among adolescent boys who use SM.

Future work should build on the limitations of this preliminary study. Although the study assessed the prospective associations between ASMC and depressive symptoms one year later, the current study cannot determine causality. The data come from a single school in a low-income, rural area of the southeastern U.S. Data were self-reported, including a single item measurement of frequency of SM use. Furthermore, the requirement of active consent from parents may have biased the sample. Although the current sample was diverse in terms of racial/ethnic identity and socioeconomic status, future work with larger samples can consider how intersecting identities affect the processes under study. Future work with more than two time-points should also examine individual differences in within-person changes in these associations and identify the extent to which increases in depressive symptoms are clinically significant.

As research continues to examine connections between adolescents' SM use and depressive symptoms, the role of SM-specific appearance concerns and the emphasis of many SM platforms on physical appearance must be recognized. The present study presents preliminary longitudinal evidence that ASMC is more important in explaining later depressive symptoms than frequency of SM use. Future work should build on these findings to identify the many ways in which psychological experiences on SM contribute to mental and behavioral health consequences.

The authors declare no conflicts of interest.

Data is available from the first author upon reasonable request following IRB approval. All study procedures were approved by the North Carolina State University Institutional Review Board, Assigned Study #6148. Parents or guardians of participants provided active consent prior to data collection; participant provided assent.

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Table 1.

Descriptive Statistics and Bivariate Correlations Among Study Variables

	Full Sample ***n*** **= 163** ***M*** **(*SD*)**	**Girls** ***n*** **= 91** ***M*** **(*SD*)**	**Boys** ***n*** **= 72** ***M*** **(*SD*)**	**Gender Comparison** ***t***	**[1]**	**[2]**	**[3]**	**[4]**	**[5]**
[1] ASMC T1	3.24 (1.31)	3.77 (1.24)	2.59 (1.07)	6.49***	-	.73**	.37**	.43**	.36***
[2] ASMC T2[1]	3.11 (1.27)	3.61 (1.28)	2.46 (0.91)	6.69***	.68***	-	.33**	.36**	.30**
[3] Depressive Symptoms T1	0.65 (0.54)	0.73 (0.54)	0.54 (0.51)	2.28*	.26*	.24*	-	.63**	.03
[4] Depressive Symptoms T2	0.63 (0.51)	0.73 (0.50)	0.52 (0.50)	2.70**	.24*	.28*	.65***	-	.11
[5] Time on SM T1	4.21 (2.98)	5.01 (3.10)	3.21 (2.51)	4.11***	.18	.15	−.01	.17	-

Note. T1 = Time 1; T2 = Time 2. SM = social media. ASMC = appearance-related SM consciousness. For correlations, girls are presented above the diagonal, boys below.

[1] 10 participants (5 boys and 5 girls) did not complete data regarding ASMC at T2.

* $p < .05$,

** $p < .01$,

*** $p < .001$

Table 2.

Hierarchical Regression Model Parameters Predicting Depression at T2

Step 1	**b**	**SE**	**β**	***p***
Intercept	2.33	--	--	--
Gender (Boy)	−0.77	.83	--	.353
Time on SM T1	0.29	.14	.13	.037
Depression T1	0.60	.06	.63	< .001
R^2 = .45, p < .001				
Step 2				
Intercept	0.39	--	--	--
Gender (Boy)	−.16	.87	--	.851
Time on SM T1	.20	.14	.09	.162
Depression T1	.56	.06	.59	< .001
ASMC T1	.73	.37	.15	.047
ΔR^2 = .014, p = .047				
Step 3				
Intercept	0.95	--	--	--
Gender (Boy)	1.18	2.23	--	.597
Time on SM T1	.19	.14	.09	.185
Depression T1	.56	.06	.59	< .001
ASMC T1	.91	.45	.18	.047
ASMC T1 × Gender	−0.45	.69	−.10	.514
ΔR^2 = .001, p = .514				

Note. SM = social media. ASMC = appearance-related SM consciousness. Gender coded as 0 = girls, 1 = boys.