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Early adolescent social media-related body dissatisfaction: Associations with depressive symptoms, social anxiety, peers, and celebrities

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Abstract

Objective: It is critical to examine the powerful socializing effects of networked media on early adolescents when social media use, body self-consciousness, and social comparisons are at their peak.

Method: Using two subsamples (N=374 and N=396) of 11 to 14 years old from a larger survey sample of 700 middle school participants in the Northeast USA, we conducted a cross-sectional pilot survey using brief, descriptive body dissatisfaction measures directly related to social media use.

Results: Within our body dissatisfaction subsample, 19% reported dissatisfaction to body image issues. Participants' most common concerns around body image included not being thin enough, not attractive enough, and feeling dissatisfaction with body shape, hair, and face. Results from ANCOVA analyses showed those reporting social media-related body dissatisfaction checked their social media more frequently. Compared to those who did not feel negatively about their body image because of social media, those who did had higher rates of depressive symptoms, online social anxiety, found it harder to make new friends, and were more socially isolated. Those who followed celebrities checked social media more frequently and were more likely to have depressive symptoms and online social anxiety.

Conclusions: There may be negative socioemotional health consequences of early adolescent social media users with exposure to particular sources of social media content, such as photos of celebrities.

Keywords

body dissatisfaction; social media; depressive symptoms; social anxiety; social isolation; early adolescence

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Introduction

Social media's effects on adolescent body image is highly relevant with 95% of US teens having smartphone accessibility and almost half (45%) being on social media continuously.[1] A systematic review found substantial correlational research supporting maladaptive associations among social media use and body image and disordered eating, particularly when social media users were frequently viewing and uploading photos of idealized images and ultimately focusing on peer network feedback.[2] These studies demonstrate that it is not merely the act of sharing photos that is detrimental but rather, the overinvestment of curating photos (e.g., creating and identifying photos for display) to enhance self-presentation within one's online peer networks that is strongly associated with body dissatisfaction.[3,4]

Social comparison theory argues that people are motivated to determine their standing by comparison with others.[5] Higher levels of appearance-related social media consciousness are associated with higher depressive symptoms and disordered eating symptoms, particularly in girls.[6] An experimental manipulation of Instagram photo exposure among young college-aged women found that exposure to thin and attractive peers and celebrity photos on Instagram had an immediate negative effect on women's body image and mood.[7]

Whereas most previous studies have examined these relationships in older adolescents and young adults, there are far fewer studies on the effect of social media among *early* adolescents when body self-consciousness is at its peak.[8] Heightened body surveillance is normative during puberty as the perception of one's physical appearance is increasingly tied to one's self-worth, which could lead to body shame when failing to achieve the ideal body type.[9] Early adolescence is a time of increased attention to peer approval and independence from parents/caregivers. Decreased self-esteem and increased anxiety and competition with others often occur during this developmental stage.[10] Third, early adolescents consume media images primarily through online peer interactions on social media,[1] engaging in impression management behaviors (e.g., uploading and commenting on photos).

Although body dissatisfaction occurs in different genders, prior studies have established that it is more normative for females to have higher levels of body dissatisfaction than males, particularly in the approval-seeking context of social media use.[6, 9, 11] In one of the few studies of early adolescents on this topic, Facebook use in younger adolescent females aged 13–15, was significantly associated with body image concerns, namely the drive for thinness and body surveillance, compared to non-use.[12] Researchers found that for females ages 12 to 18, body image dissatisfaction was influenced not by total time spent on Facebook, but by time spent on uploading or commenting on photos.[13] Previous studies relating body dissatisfaction to social media use have primarily focused on platforms that are most popular among young adults (i.e., Facebook) compared to what is currently most popular among adolescents (i.e., Instagram and Snapchat).[14]

The current study addresses a gap in the literature that overlooks the period of early adolescence (ages 11–14) that is marked by a preoccupation with one's physical development during puberty as well as peer approval and rejection. We address the paucity

in the literature that (a) identifies uses of SMS that might trigger body dissatisfaction, such as photos and comments from friends and strangers one emulates (i.e., celebrities), using a social media-specific targeted measure of body dissatisfaction in a sample that primarily uses Instagram and Snapchat as opposed to Facebook; and (b) examine whether exposure to these sources of body dissatisfaction (e.g., photos posted by friends vs. celebrities) is associated with negative psychosocial health outcomes. The primary aim of our pilot study is to explore the following specific questions:

1. What percentage of early adolescents have ever felt body dissatisfaction after using SMS? What types of body dissatisfaction is experienced and from what sources of social media exposure do they attribute to this? Are there any trends by gender?
2. Does body dissatisfaction after using SMS or following celebrities on SM co-occur with frequency of social media use and socioemotional health?

We hypothesize that social media-related body dissatisfaction will co-occur with external sources that are highly salient to an adolescent's need for social comparison, such as celebrity photos or friend photos. Females will report more social media-related body dissatisfaction than males. Social media-related body dissatisfaction and following celebrities will be significantly related to negative socioemotional health.

Method

Procedure

This pilot study of body dissatisfaction was part of a larger study of social media use and early adolescent wellbeing.[15, 16] Ethnically and socioeconomically diverse middle schools with digital access from urban and suburban areas of the Northeast were invited to participate in the study. Following approval by the Wellesley College IRB Committee and school districts to wave documentation of consent for the school-based survey, principals from three schools across three districts provided access to either their 6^{th}-8^{th} grade student population or an afterschool subsample for a 40-minute online survey during a designated period in fall of 2017. Parents could opt out of their child's participation after they reviewed study disclosures. Schools provided laptops to take the online Qualtrics survey. Study personnel proctored the survey administration, answering any questions to ensure that student data would be confidential. Participation was voluntary and students provided online assent before beginning the survey. Raffle prizes were offered to a select few and embossed collegiate pens were given to every student in attendance.

Measures

A focus group of older adolescents helped generate the social media-related body dissatisfaction questions and response options. Survey measures were then pre-tested with three middle school students. We interviewed them by phone for 30 minutes on terminology, length, and response options available, shaping the items before the survey data collection began. Items were refined based on feedback before subsequent data collections.

Grouping Variables

Social media-related body dissatisfaction: We asked participants, "Have you ever felt down when you compared yourself with what you saw on your social media related to body image/shape/type?" Participants who checked "yes" were asked two follow-up questions, checking all that applied, (1) "What did you see on social media that made you feel this way about your body?" Response options included comments and/or photos from people they knew, people they didn't know, or a celebrity; and (2) "In what ways did you feel dissatisfied with your body?" Response options included items related to perceived weight and height, attractiveness, body shape, age, femininity/masculinity, and disfigurement.

Following celebrities: We asked participants "Who are your friends on social media (Instagram, Facebook, etc.) Check all that apply." The list included such categories as family, classmates, strangers, and celebrities. To provide examples of celebrities, we mentioned actors, musicians, and athletes, which the piloting indicated were the most common type of celebrities that early adolescents friended. We created a dichotomized variable of those who friended celebrities (1) and those who did not friend celebrities (0).

Dependent Variables

Social media frequency of use: Participants indicated the frequency in which they check their social media accounts during a typical school week on a 7-point scale: *never/does not apply to me*, *less than a few times per week, a few times per week, every few days, once a day, every few hours,* to *more than every hour*. Social media sites were defined on the survey as "online spaces where people can create their own pages and share them with friends, such as Instagram."

Socioemotional health

Depressive symptoms.: We used the four-item Center for Epidemiological Studies Depression Scale for Children (ages 10–13; CES-DC[17]): "Please check how much you felt this way in the past week" with respect to the following experiences: happy, felt that friends didn't want to be with me, sad, hard to get started doing things. To strengthen this measure, we added two items from the CESDR-10 which has been validated on older adolescent samples (aged 13–18): could not focus on the important things; felt irritable or cranky.[18] The Cronbach's alpha for the current sample for the combined adapted scale was .79.

Online social anxiety.: We used the Fear of Negative Evaluation (FNE) subscale from the Social Anxiety Scale for Adolescents (SAS-A) Short Form with items adapted for a SMS context. This subscale has been validated[19] with samples aged 13–17. Participants were asked, "Is this true for you? 1) I worry about what others say about me on social media; 2) I worry about what others think of me on social media; and 3) I'm afraid that others won't like me on social media." The Cronbach's alpha for the current sample was .82.

Making new friends.: Adolescents were asked if they agreed with "I find it hard to make new friends," a single item from the Peer Relationships subscale of the Social Functioning Scale.[20] Answers were on a 4-point scale ranging from *strongly disagree* to *strongly agree*.

Social isolation.: Adolescents were asked if they agreed with "I spend most of my free time alone" on a 4-point scale. This was a single item from the Peer Relationships subscale of the Social Functioning Scale.[20]

Covariates

Potential confounders have been associated with both the grouping and dependent variables in prior studies. For instance, the association between frequent social media use and mental health and wellbeing are more pronounced in girls.[21] Adolescent girls are twice as likely to be depressed compared to boys[22] and depressed girls more likely to experience body image dissatisfaction compared to boys.[23] The relationship between social media use and anxiety is moderated by age in young adults.[24] As a proxy of socioeconomic status, maternal education status has been associated with both adolescent online use[25] and mental health.[26]

Demographics—Participants reported age, gender (female, male, other/non-binary), and mother's highest level of education (ranged from did not complete high school to graduate/professional degrees).

Data analyses—One-way analysis of covariances were used to assess associations between a) social-media related body dissatisfaction and SMS use and socioemotional health and b) between following celebrities and SMS use and socioemotional health. Individual ANCOVA models were used to separately analyze a) the differences between body dissatisfaction and non-body dissatisfaction groups and SMS use and each measure of socioemotional health and b) between following celebrities and not following celebrities groups and SMS use and each measure of socioemotional health. We controlled for the adolescent's age, gender, and mother's education in all models. To address the two research questions, two subsamples using the most amount of data available were created. One subsample excluded students who had missing data on the body dissatisfaction question (excluded N=274), covariates (excluded N=48), or were 15–16 years old (excluded N=4), resulting in an analysis sample of 374. The second subsample excluded students who were missing on the following celebrities question (excluded N=229), covariates (excluded N=70), or were 15–16 years old (excluded N=5), resulting in a sample of 396. All missing data were handled with listwise deletion.

Results

We reached response levels of 88–92% across the different school sites, yielding a total sample size of 700. Our sample was diverse (52% were female; 48% White, 14% Black, 16% Asian, 11% Hispanic, 4% Biracial, 7% Other; 26% were eligible for free/reduced price lunch). See Table 1 for full descriptives.

Descriptive Results about Social Media-Related Body dissatisfaction

Using the social media-related body dissatisfaction subsample to address research question 1, the percentage of participants who felt down about their body image after viewing SMS was 19% (N=70). More females (84%, N=59) reported social media-related body dissatisfaction than males (16%, N=11). Out of the 70 participants who reported social

media-related body dissatisfaction, we qualitatively broke down the most frequent reasons by gender (see Figure). The top 3 reasons for females were not being thin enough (64%), not being attractive enough (63%), and disliking their body shape (59%). The top 3 reasons for males were disliking their body shape (73%), not being thin enough (55%), and not being attractive enough (46%) or disliking face/hair (46%). When adolescents reported social media-related body dissatisfaction, they predominantly identified the source as either a celebrity photo (54%), a friend photo (53%), or a photo of someone they did not know (37%). Fewer adolescents reported that comments about their own (11%) or someone else's (26%) body/shape/type elicited negative thoughts about their body image.

Socioemotional health

The social media-related body dissatisfaction subsample was used to address research question 2a. Early adolescents who felt body dissatisfaction after viewing social media checked it more often [F(1,354)=5.11, p=.024]. Compared to those who did not feel social media-related body dissatisfaction, those who did were also more likely to have depressive symptoms [F(1,365)=29.36, p=.000], online social anxiety [F(1,324)=35.15, p=.000], found it harder to make new friends [F(1,360)=9.34, p=.002], and spent most of their free time alone [F(1,362)=5.80, p=.017] [See Table 2a]. Those who friended celebrities checked social media more often [F(1,381)=27.89, p=.000], and were more likely to have depressive symptoms [F(1,296)=5.04, p=.026] and online social anxiety [F(1,286)=8.82, p=.003] [See Table 2b].

Discussion

Adolescents who endorse greater body dissatisfaction are likely to engage more with social media, and report greater depressive symptoms, online social anxiety, and difficulty with offline friendships compared to adolescents with less social media-related body dissatisfaction. Because our study is cross-sectional, it is possible that early adolescents who endorse more symptoms of depression or anxiety have a tendency to spend more time engaging in social media, and experience greater body dissatisfaction when engaging in social media, or vice versa. Longitudinal research will help to understand directionality of these relationships.

The small subsample size of those who reported social media-related body dissatisfaction is a limitation; we could only report gender differences qualitatively. For some of our outcomes, the assumption of homogeneity of variance was not met. However, the strength of the observed p-values (all of which were at or below .026), suggests that our findings were relatively robust in spite of this violation. Future research should aim to replicate the current results with a larger sample.

With the advent of being able to follow favorite celebrities on Instagram or Twitter – adolescents may follow many more celebrities than peers they actually know-- the influence of such a wide presence of celebrities on adolescent social media networks requires more investigation. Notably, the adolescents from our study reported that a large proportion (up to 54%) of online-induced body dissatisfaction stemmed from viewing image-based sources, particularly celebrity photos.

A novel aspect of this study was adapting an established subscale of a social anxiety measure to tailor it for online contexts, for which there are no existing established measures. However, such response may be subject to recall biases. We did not ask which specific social media site triggered each occurrence of body dissatisfaction, which could be best measured by ecological momentary assessment. Future studies should use more nuanced measures to identify how preoccupation with social media self-presentation relates to the riskiest levels of body dissatisfaction.[27] Finally, future research should also report group differences that reveal any differential susceptibility of subpopulations, such as sex, gender identity, race/ethnicity, etc. Finally, it is critically important that practitioners, educators, and parents are both attentive to social media use among early adolescents with greater levels of mental health concerns, as well as frequent social media users who may be vulnerable to potential body image-related mental health vulnerabilities.

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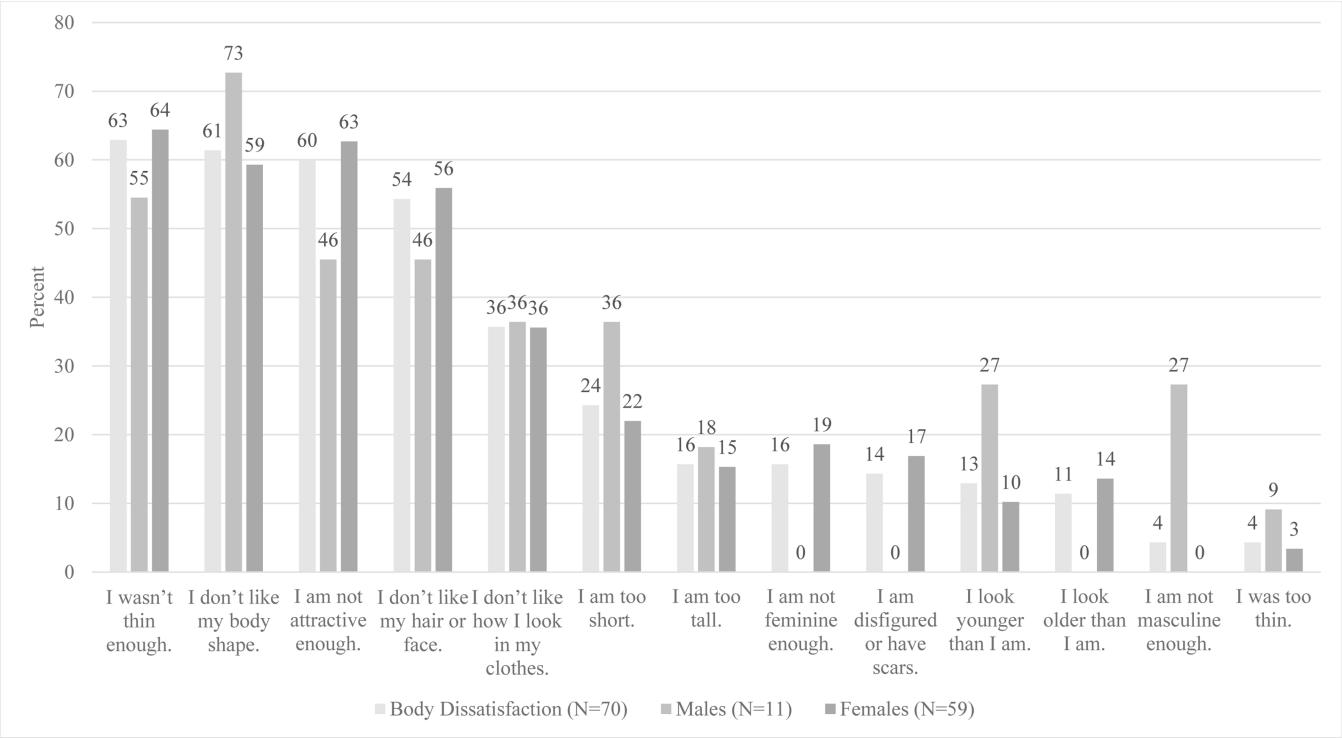

Figure 1.
Reasons for Body Dissatisfaction: Full Sample and by Gender

Table 1.

Sample Descriptives

	Full sample (N=700)		Social Media-related Body Dissatisfaction subsample (N=374)		Following Celebrities subsample (N=396)	
	N	**Percent**	**N**	**Percent**	**N**	**Percent**
Female gender	364	52.4	210	56.1	233	58.8
Race						
White	328	47.7	220	59.5	206	52.6
Black	97	14.1	35	9.5	45	11.5
Asian American	110	16	59	15.9	60	15.3
Hispanic	77	11.2	30	8.1	41	10.5
Multiracial	30	4.4	8	2.2	17	4.3
Other	45	6.5	18	4.8	23	5.9
Receives free/reduced price lunch	109	25.8	31	13.4	57	22.7
Mother's education						
Did not complete high school	26	3.7	12	3.2	19	4.8
Completed high school	58	8.3	28	7.5	36	9.1
Some college	38	5.4	21	5.6	24	6.1
Completed college	232	33.1	140	37.4	154	38.9
Graduate/ professional school	242	34.6	173	46.3	163	41.2
Don't know/ does not apply	80	11.4	0	0	0	0
Social media-related body dissatisfaction	77	18.1	70	18.7	65	23.2
Follows celebrities	181	38.4	109	38.9	159	40.2
Social media frequency						
Never/does not apply	197	29.3	118	32.9	51	13.2
Less than a few times per week	36	5.4	12	3.3	18	4.7
A few times a week	23	3.4	14	3.9	15	3.9
Every few days	36	5.4	16	4.5	22	5.7
Once a day	78	11.6	43	12	59	15.3
Every few hours	165	24.6	93	25.9	123	31.9
More than every hour	137	20.4	63	17.5	98	25.4
	N	**Mean (SD)**	**N**	**Mean (SD)**	**N**	**Mean (SD)**
Age	699	12.70(1.00)	374	12.70(0.98)	396	12.85(0.91)
Depressive symptoms	475	1.69(0.61)	370	1.67(0.59)	301	1.70(0.61)
Online social anxiety	410	1.26(0.37)	329	1.26(0.37)	291	1.27(0.37)
Making new friends	486	2.18(0.87)	365	2.17(0.85)	310	2.14(0.87)
Social isolation	486	2.20(0.86)	367	2.15(0.85)	309	2.15(0.86)

SD=Standard Deviations

Table 2a.

Social Media-Related Body Dissatisfaction and Adolescent Social Media Use and Socioemotional Health

Outcome	Body Dissatisfaction			Non-Body Dissatisfaction				
	Mean	SD	95% CI	Mean	SD	95% CI	F-Statistic	*p*
Frequency of Checking Social Media	3.64	0.28	3.10–4.19	2.94	0.13	2.68–3.19	5.11	0.024
Depressive Symptoms	2.03	0.07	1.89–2.18	1.59	0.03	1.53–1.66	29.36	0.000
Online Social Anxiety	1.51	0.05	1.42–1.60	1.20	0.02	1.16–1.25	35.15	0.000
Hard to Make Friends	2.47	0.11	2.26–2.68	2.11	0.05	2.01–2.20	9.34	0.002
Social Isolation	2.39	0.11	2.18–2.60	2.10	0.05	2.00–2.20	5.80	0.017

Table 2b.

Following Celebrities and Adolescent SMS Use and Socioemotional Health

Outcome	Following Celebrities			Not Following Celebrities				
	Mean	SD	95% CI	Mean	SD	95% CI	F-Statistic	*p*
Frequency of Checking Social Media	4.65	0.15	4.35–4.95	3.61	0.12	3.36–3.85	27.89	0.000
Depressive Symptoms	1.80	0.06	1.69–1.91	1.63	0.05	1.55–1.72	5.04	0.026
Online Social Anxiety	1.36	0.04	1.29–1.43	1.22	0.03	1.17–1.28	8.82	0.003
Hard to Make Friends	2.12	0.08	1.97–2.28	2.16	0.06	2.03–2.28	0.11	0.742
Social Isolation	2.21	0.08	2.06–2.37	2.11	0.06	1.99–2.24	0.98	0.323

Note: Means and Standard Deviations (SDs) reported are estimated marginal means based on the covariates in the model. Models controlled for teen gender, age, and mother's education. CI = Confidence Interval; *F*-Statistic (Fisher Test) is the ratio of the between group variance to the within group variance; *p*-value = Statistical significance to determine whether values were similar across social media-related body dissatisfaction groups