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The relationship between social media use and pregnancy-related body image

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Abstract

Background: Social media negatively affects body image, but few have investigated its impact on pregnancy-related body image. Pregnancy represents a vulnerable period for body image, and poor body image has negative implications for health.

Objectives: We aimed to (1) understand relations of social media and pregnancy-related body image variables, (2) examine differences in social media use and body image based on demographic characteristics, and (3) evaluate whether type of social media use (i.e., active versus passive) was differentially related with body image based on time spent on social media.

Design: This was a cross-sectional study.

Methods: We recruited an online sample of women ($N = 154$) experiencing early motherhood, as defined by giving birth within the past 5 years. We examined social media use (e.g., amount of time, type of use) on Facebook, Instagram, and Twitter in relation to pregnancy-related body image questionnaires.

Results: Passive use (e.g., viewing others' content rather than creating original content) and greater time on Facebook were independently related to lower positive body image. Those who passively used Facebook for the longest amount of time had the lowest positive body image. No significant effects were found for Instagram or Twitter.

Conclusion: Spending more time passively viewing others' content may facilitate social comparison, reducing positive feelings about one's own body. Social media may constitute a source of pressure and scrutiny for women, resulting in lowered pregnancy-related body image.

Keywords

social media, body image, postpartum, pregnancy-related, women, early motherhood, moderation analysis.

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Introduction

Evidence suggests that social media may negatively impact psychological well-being, including mood[1] and body image.[2] In addition to scholarly reports about this concern, an internal memo from Facebook (now Meta) was leaked indicating that the company was aware their platforms were potentially harmful for psychological well-being.[3] Previous publications, including Facebook's own memo, indicate that the effects of social media may be damaging to body image for girls and women.[3,4] This may be because women face higher scrutiny and objectification regarding their bodies than men, and women's sense of self-worth is more often tied to their physique than men's.[5] While research has focused some attention on pregnancy and body image,[6–8] few studies have investigated how social media use might impact women's body satisfaction in relation to pregnancy.

Such a lacunae is surprising, given that women go through a critical period of bodily change during the

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peripartum period (i.e., the time frame stretching from pregnancy to shortly after giving birth). Women may gain an average of anywhere from 20 50 lbs (~9–23 kg) or more in a brief period of time, and studies have shown that women navigate a range of meanings associated with their body weight.[9] Because women today consume social media at very high levels with 78% of U.S. women using at least one social networking site[10] and because scholars know that media consumption can exacerbate negative body image,[11] it is important to understand how such consumption might influence body image in relation to pregnancy. This study will investigate the relationship between social media use and body image among women who have experienced pregnancy.

Social media use tendencies

Research regarding social media and mental health has differentiated "active" and "passive" use. Active use is defined as behaviors that can lead to acknowledgment/engagement from others, such as posting original content (e.g., status updates, photos). Passive use is characterized as more consummatory (e.g., viewing content, newsfeed scrolling).[12] Passive social media use has deleterious effects on well-being.[12–14] This may be because many individuals post unrealistically flattering self-depictions, leading passive users to engage in more upward social comparison.[15,16] Interestingly, active use in general has not shown the same mental health risks, and in some cases, is even linked to lower depression.[13] However, there can be more nuance within the realm of active use, as recent work has also found that the active process of creating and edited idealized self-representations is associated with lower body dissatisfaction[17,18] and posting self-images to social media has resulted in lower feelings of attractiveness.[19] Taken together, this indicates the importance of examining different types of use.

Appearance-focused content stands out as particularly challenging for body image,[20] and appearance-focused content has a stronger relationship with internalization of the thin ideal compared to social media use in general.[21] Viewing unrealistic or idealized images through social media has been theorized to trigger negative feelings about one's own body in comparison.[22] Experimental research has found that viewing Instagram images of thin women increased body dissatisfaction,[18] and data are mixed regarding the impact of exposure to body positive content.[23] Women who follow nutrition influencers on Instagram have been shown to have greater body dissatisfaction and eating disorder symptoms[24]; however, it is unknown whether the physical characteristics of the influencers presenting the information may factor into this finding in addition to the nutritional content itself, indicating potentially both social comparison processes and content characteristics may be factors of concern. Reviews indicate social comparison processes underlie the relationship between social media use and body dissatisfaction.[11,25] This suggests that women who passively engage with social media may be more vulnerable to the processes that negatively impact body image. Indeed, passive Facebook use relates to greater internalization of societal attractiveness norms and lower body satisfaction for women.[26]

In addition to *how* social media is used (i.e., active versus passive), *how much* social media is used also impacts well-being. Specifically, more frequent Facebook use yields greater declines in life satisfaction.[27] Those who spend more time on Facebook also have stronger beliefs that others' lives are better.[15] Relatedly, the positive effects of taking a break from Facebook are stronger for heavy users.[14] More time on social media predicted greater eating disorder symptoms, including weight and shape concerns.[28–30] Since *any* Facebook use is linked to greater body dissatisfaction,[31] including in comparison to other online activities,[29] women who spend more time on social media may have greater risk for body image concerns.

Social media and pregnancy-related body image

Research has linked pregnancy to a decrease in women's feelings of personal attractiveness[32] and women face pressures to "get their body back" soon after pregnancy.[33] Peripartum women who viewed idealized Instagram images related to pregnancy or the postpartum period experienced worse body image compared to those who viewed body-positive photos.[34] Challenges to pregnancy-related body image exist in non-idealized content on Instagram as well. According to a content and thematic analysis of Instagram posts tagged as #postpartum, difficulty with appearance-related postpartum changes emerged as one of four major data themes.[35] Social pressures may contribute to the relationship between body concerns and gestational weight gain. Mehta et al.[36] found that women with body dissatisfaction were more likely to gain weight outside of recommended ranges during pregnancy. This is concerning, as gaining too much or too little weight may be problematic for pregnancy and delivery.[37] These challenges can include downstream effects too, as greater weight gain from pre-pregnancy to postpartum is linked to less breastfeeding.[38]

One of the mediums through which social factors can influence pregnancy-related body image is social media. Specifically, exposure to images portraying the "thin ideal" on social media negatively impacts postpartum women's body image, with greater body appreciation and lower rumination buffering this effect.[34] Social media content, such as trends promoting a "Belly Only Pregnancy," may pose challenges for pregnancy-related body image.[39] In line with these findings, some have shown that social

media engagement is associated with more negative body image, postnatal concerns, and competitiveness about pregnancy physique.[40] Additionally, greater Facebook use is correlated with greater pregnancy-related body dissatisfaction.[41] However, the scant, but growing, pregnancy and body image literature, has not often considered social media.

In sum, literature indicates women may experience shifts in body image during the peripartum period. It is important to know more about what impacts pregnancy-related body image, as it is linked with health-related outcomes, such as breastfeeding and weight change. Societal pressure to "bounce back" physically from pregnancy may be one factor that leads some women to experience more negative pregnancy-related changes in body image than others. Social media may present more opportunities for social pressure and upward comparison, and differentially impact pregnancy-related body image, based on the ways in which women interact with the platform.

Current study

The goal of this study was to learn more about the connection between social media use and pregnancy-related thoughts and feelings about one's body. Our first aim was to learn more about the bivariate relations of social media and pregnancy-related body image variables. Our second aim was exploratory and focused on whether differences existed in social media use and body image based on demographic characteristics. Finally, our third aim was to evaluate whether type of social media use (i.e., active versus passive) was differentially related with body image based on time spent on social media. Specifically, we hypothesized that those who engaged in passive use and spent more time on social media would have more negative and less positive body image.

Materials and Methods

Participants and procedures

Participants ($N = 154$) age 18 and over from the United States who had given birth less than 5 years ago (i.e., within the past 4 years)—the period of time typically referred to as "early motherhood"[42]—were recruited using the online platform Prolific for a study surveying pregnancy and body image. Cross-sectional data were collected in April 2021.

Participants were informed that they could stop participation at any time and were compensated $1.59. Data were collected anonymously. For quality control, we included an attention check item stating "It is important to pay attention to survey questions. Please select 'Strongly Disagree' for this item." Only participants who selected the response specified in the question were included in analyses. We have followed the STROBE guidelines[43] in the preparation of this manuscript.

Ethics approval and consent to participate. This study was reviewed by The Office for Research Protections at Penn State University and deemed exempt from formal Institutional Review Board review. Specifically, the study met the criteria for exempt research and was granted approval number STUDY00017190 under the exempt designation based on university policies and related federal regulations. The need for written consent was waived by the Office of Research Protections as they deemed that it posed no more than minimal risk to participants under the exempt designation. A brief study description and contact information for the principal investigator was provided to participants prior to their initiation of the survey.

Measures

Background information. Participants self-reported their race/ethnicity, age, sex assigned at birth, gender identity, level of education, annual household income, sexual orientation, time elapsed since most recently giving birth, and number of children.

Social media use. Participants were asked to indicate whether they used Facebook, Twitter (now known as X), or Instagram. These platforms were chosen for their popularity with our target demographic at the time of data collection. Participants reported the average hours they spent on each of the above-mentioned platforms, respectively. These questions were developed for the current study and were considered to be face valid. Response choices were as follows: 0 (did not use), 1 (<1 h per day), 2 (1–3 h per day), 3 (3–5 h per day), 4 (5–7 h per day), 5 (7–9 h per day), 6 (>9 h per day), or not applicable (do not use this platform). A dichotomous variable was created from the above item to reflect whether participants endorsed any social media use (0 = did not use; 1 = used one or more of the platforms assessed).

Participants also indicated the ways in which they used each platform by selecting from the following options: (1) reading news, (2) shopping, (3) making your own posts (photos, thoughts, etc.), (4) sharing articles, links, or memes, (5) liking or commenting on other people's posts, and (6) viewing the posts of celebrities, influencers, or politicians. Based on previous research that indicates that passive use of social media may have differential effects for users (e.g., greater declines in well-being) compared to active use,[12,14] we classified the above activities as representing active or passive use. Active use was defined as creating content or self-initiated posting (i.e., posting their own photos, thoughts, or sharing articles, links, or memes to their page). Passive use was defined as browsing or viewing content (e.g., viewing and/or "liking" others'

posts), reading news, or shopping. This is consistent with the conceptualizations of active and passive use from previous literature.[14] Note that active and passive use are not mutually exclusive; therefore, the same participant may endorse active use, passive use, or both, for any of the three platforms assessed. Active use and passive use were dichotomously coded (0 = absent, 1 = present) for each of the three platforms, respectively.

Body image. Our body image measure was comprised of items from the scale published by Hicks and Brown[41] which assesses maternal body image during pregnancy. Item responses range from 1 (*strongly agree*) to 5 (*strongly disagree*). We adjusted item phrasing to past tense as the original scale was written for people who were currently pregnant. Since the original scale is rather lengthy, we selected representative items that assessed self-reflections of pregnancy-related attractiveness, body weight, and one's changing shape to form an abbreviated version of the scale. We selected 16 items, with at least one item from each subscale included, that were among some of the higher factor loadings in the original paper's factor analysis and that represented several of subscales identified by Hicks and Brown.[41] We also prioritized items that were face valid representations of themes that were relevant for this project and assessed concepts in an efficient manner. For instance, we selected the item "I worry about the effect of pregnancy upon my body" which assesses global concerns about the impact of pregnancy on the body rather than domain-specific items such as "I worry about the effect of pregnancy upon my breasts" as well as "I am worried about stretch marks." We performed a principal components analysis (see Supplemental Material) to evaluate the factor loadings for the items we included with regard to Hicks and Brown's identified factors. Factors were determined based on Eigenvalues of greater than or equal to 1. A varimax rotation was performed with Kaiser Normalization. Our analysis yielded four factors: positive body image, four items, factor loadings ranged 0.61–0.85; negative body image, two items, factor loadings ranged 0.58–0.70; postnatal concerns, five items, factor loadings ranged −0.66–0.83; and concerned for growth, three items, factor loadings ranged 0.76–0.88. Cumulatively, these four factors explained approximately 70% (i.e., 69.92%) of the total variance. Only items with factor loadings of 0.55 or greater, which are considered "good" according to Comrey and Lee[44] were retained in the four factor-based subscales for later analyses. One item cross-loaded with nearly identical values on two factors. To preserve the quality of the factors and to enhance the distinct nature of the domains we sought to evaluate, we elected to remove the overlapping item. Examples of the subscale items from our abbreviated version are as follows: positive body image: "I loved how I looked during pregnancy"; negative body image: "I compared my body negatively to other pregnant women"; postnatal concerns: "I felt pressure to return to my pre-pregnant weight once my baby was born"; concerned for growth: "I was worried my bump was too small." Cronbach's alphas in our sample with the abbreviated scale were similar to those found in the original validation sample[41] and all demonstrated acceptable internal consistency: positive body image $\alpha = 0.86$, negative body image $\alpha = 0.70$, postnatal concerns $\alpha = 0.86$, and concerned for growth $\alpha = 0.79$.

Statistical analyses

We used SPSS version 28[45] for our analyses. Our descriptive analyses included calculation of means, standard deviations (SD), frequencies, and scale reliabilities. To evaluate the factor loadings for our body image scale items, we performed a principal component analysis. To test Aims 1 and 2, we performed bivariate correlations, chi square, and *t*-tests. Missingness on questionnaire data was low (5.8%), and as such we utilized available-case analysis.

To test Aim 3, we used the SPSS macro add-on, PROCESS, version 3.4, which utilizes ordinary least squares regression-based path analysis.[46] The moderation analysis followed PROCESS Model 1, which investigates the impact of one moderator variable on the relationship between a predictor and outcome utilizing 5000 bootstrap samples. Conditioning values of −1 SD, mean, and +1 SD were used. We mean centered the continuous moderator variable prior to testing its interaction with our dichotomous predictor.

Power calculations were performed in SPSS to determine sample size for our primary study goals (Aims 1 and 3). A power analysis for our correlational analyses with the parameters of achieving 80% power, $p < 0.05$, and the assumption of a medium (0.30) effect and based on Cohen's guidelines[47] for effect sizes for *r* values indicated that 84 participants were required to evaluate Aim 1. Similarly, a power calculation indicated that in order to achieve 80% power for a linear multiple regression model with 3 predictors at $p < 0.05$ and a small effect ($f^2 = 0.15$), a sample size of 77 participants was required. Since our overall sample size exceeded 84, and our sample size for Facebook users exceeded 77, our primary analyses were well-powered.

A post hoc power analysis in G*Power for our exploratory aim revealed that our *t*-tests examining group differences (Aim 2) between those who did and did not use various social media platforms were underpowered (i.e., 31% power achieved); however, this was likely due to the small number of participants who did not use social media—particularly Facebook. It is not surprising that there were very few participants who did not use social media leading to unequal group size-related power issues. Yet, Aim 2 was exploratory as our primary goals of this study concerned associations between variables within the groups of social media users.

Table 1. Demographic characteristics of the sample ($N = 154$).

	%	*n*
Race/ethnicity		
Asian	1.95	3
Black/African American	5.19	8
Hispanic/Latinx	8.44	13
Multiracial	2.60	4
White/Caucasian	81.17	125
Other	0.65	1
Age		
18–29 years old	28.57	44
30–39 years old	61.04	94
40–49 years old	10.39	16
Education (highest degree earned)		
High school diploma	29.22	45
Associates degree	14.29	22
Bachelor's degree	33.12	51
Graduate degree	22.08	34
Declined to respond	1.29	2
Annual household income		
< $49,999	31.82	49
$50,000 to $124,999	53.25	82
<125,000	14.93	23
Sexual orientation		
Straight/heterosexual	81.17	125
Lesbian/gay	1.95	3
Bisexual	16.23	25
Decline to answer	0.65	1
Number of children		
1	38.96	60
2	37.01	57
3	14.29	22
4	5.19	8
5 or more	3.25	5
Other[a]	1.30	2
Time elapsed since most recent birth experience		
Less than 1 year ago	20.78	32
1 year ago	25.97	40
2 years ago	22.08	34
3 years ago	17.53	27
4 years ago	13.64	21

[a]For one participant, birth did not result in parenthood. One participant declined to provide this information.

Table 2. Descriptive information ($N = 154$).

	M	SD
Positive body image	3.03	1.04
Negative body image	3.38	1.12
Postnatal concerns	2.39	0.96
Concerns for growth	3.87	1.01
Social media use	%	*n*
Number of platforms used		
Did not use social media	4.54	7
1	23.38	36
2	42.86	66
3	29.22	45
Average daily use among Facebook users ($n = 138$, 89.61%)		
Less than 1 h per day	44.20	61
1–3 h per day	41.30	57
3–5 h per day	12.32	17
5–7 h per day	1.45	2
7–9 h per day	0.00	0
9 or more hours per day	0.72	1
Active use—Facebook[a]	65.94	91
Passive use—Facebook[a]	93.48	129
Average daily use among Instagram users ($n = 115$, 74.67%)		
Less than 1 h per day	65.22	75
1–3 h per day	29.56	34
3–5 h per day	1.74	2
5–7 h per day	2.61	3
7–9 h per day	0.00	0
9 or more hours per day	0.87	1
Active use—Instagram[a]	52.17	60
Passive use—Instagram[a]	98.26	113
Average daily use among Twitter users ($n = 53$, 34.42%)		
Less than 1 h per day	75.47	40
1–3 h per day	20.75	11
3–5 h per day	3.77	2
5–7 h per day	0.00	0
7–9 h per day	0.00	0
9 or more hours per day	0.00	0
Active use—Twitter[a]	24.53	13
Passive use—Twitter[a]	92.45	49

SD: standard deviation.
[a]Active use and passive use are not mutually exclusive; percentages can exceed 100. Active use is defined as creating content/self-initiated posting. Passive use is defined as browsing/viewing content, reading news, or shopping.

Results

Demographic characteristics

Table 1 provides demographic information about the sample. All participants indicated they were assigned female sex at birth; most (98%) identified with a feminine gender identity; however, 2% ($n = 3$) of participants currently identified as non-binary or a-gender. Participants' most recent birth experience averaged 1.77 years ago (SD = 1.33). The average number of children reported by participants was $M = 2.03$ (SD = 1.27).

Descriptive statistics and correlations

Table 2 provides descriptives for body image and social media use. Participants endorsed active use, passive use, or both, for each platform respectively. The platform with the largest percentage of active users was Facebook (59.1%, $n = 91$). Active use was reported by 39.0% of the sample ($n = 60$) for Instagram and 8.4% ($n = 13$) for Twitter. The platform with the largest percentage of passive users was also Facebook (83.8%, $n = 129$), followed by Instagram (73.4%, $n = 113$), and Twitter (31.8%, $n = 49$). We tested Aim 1 using

bivariate correlations (see Table 3). More positive body image was significantly associated with less passive Facebook use and fewer hours per day spent on Facebook.

Group differences

Aim 2 focused on exploring potential group differences based on demographic characteristics. Separate *t*-tests for each social media platform indicated no significant differences in any body image variables (12 *t*-tests total, all $p > 0.05$). We also performed separate *t*-tests to examine time since most recent birth and number of children between those who did and did not use Facebook, Instagram, or Twitter (six *t*-tests total, all $p > 0.05$). Chi-square tests determined no differences in age group, race/ethnicity, education, or household income between those who did and did not use Facebook, Instagram, or Twitter (all $p > 0.05$). Similarly, there were no differences in active or passive use for Facebook, Instagram, or Twitter based on demographic factors, time since most recent birth, or number of children (all $p > 0.05$).

Passive Facebook use, hours on Facebook, and positive body image

In our third aim, we proposed that those who engaged in passive social media use and spent more time on social media would have more negative and less positive body image, and therefore tested this aim using a regression model with an interaction term. We focused on Facebook use, as no significant relationships with body image were established with Instagram or Twitter. Similarly, since negative body image was not correlated with social media use, we focused on positive body image as our outcome variable. The overall model evaluating the relation of passive Facebook use to positive body image was significant $F(3, 141) = 6.58$, $p < 0.001$, $R^2 = 0.12$, $f^2 = 0.14$. There was a significant main effect for passive Facebook use ($b = -1.56$, $t(141) = -3.77$, $p < 0.001$) such that those who endorsed passive use had lower positive body image ($M = 2.92$, SD = 0.99) compared to those that did not endorse passive use ($M = 3.62$, SD = 1.10). Similarly, there was a significant main effect for average hours of Facebook use ($b = 0.81$, $t(141) = 2.59$, $p = 0.01$) such that those who spent less time on Facebook had higher positive body image compared to those who spent more time on the platform. There was a significant interaction between passive use and time spent on Facebook ($b = -1.01$, $t(141) = -3.03$, $p = 0.003$). As shown in Figure 1, those who endorsed passive use and spent the highest amount of time on Facebook per day had the lowest positive body image.

Discussion

This study examined social media use (actively posting content, passively viewing content, or both) and body

Table 3. Correlations between body image and social media use in individuals who were pregnant less than 5 years ago ($N = 154$).

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Body image: Positive	—												
2. Body image: Negative	−0.48***	—											
3. Body image: Postnatal concerns	−0.41***	0.52***	—										
4. Body image: Concerned-growth	0.10	0.12	−0.17*	—									
5. Any social media use[a]	−0.09	0.10	0.01	0.06	—								
6. Twitter: Active use[a,b]	0.07	−0.06	−0.01	−0.12	0.07	—							
7. Twitter: Passive use[a,c]	−0.04	−0.10	0.01	−0.06	0.15	0.44***	—						
8. Instagram: Active use[a,b]	0.06	−0.14	−0.03	−0.02	0.17*	0.09	0.14	—					
9. Instagram: Passive use[a,c]	0.05	−003	0.00	−0.03	0.36***	0.13	0.32***	0.42***	—				
10. Facebook: Active use[a,b]	−0.13	−0.04	0.00	−0.02	0.26***	0.02	0.06	0.26**	0.07	—			
11. Facebook: Passive use[a,c]	−0.25**	0.11	0.08	−0.08	0.50***	0.07	0.15	0.10	0.09	0.46***	—		
12. Twitter: Hours per day	0.04	−0.12	0.06	−0.17*	0.14	0.56***	0.82***	0.15	0.30***	0.07	0.13	—	
13. Instagram: Hours per day	0.07	−0.01	0.15	−0.12	0.26***	0.02	0.15	0.50***	0.67***	0.03	−0.04	0.26***	—
14. Facebook: Hours per day	−0.19*	0.04	0.08	−0.08	0.33***	−0.01	0.10	0.15	0.14	0.45***	0.52***	0.08	0.26**

[a]Variables coded as 0 = no, 1 = yes.
[b]Active use is defined as posting their own photos, thoughts or sharing articles, links, or memes to their page.
[c]Passive use is defined as interacting with others' content (e.g., viewing/"liking" a post), reading news, or shopping.
*$p < 0.05$. **$p < 0.01$. ***$p < 0.001$.

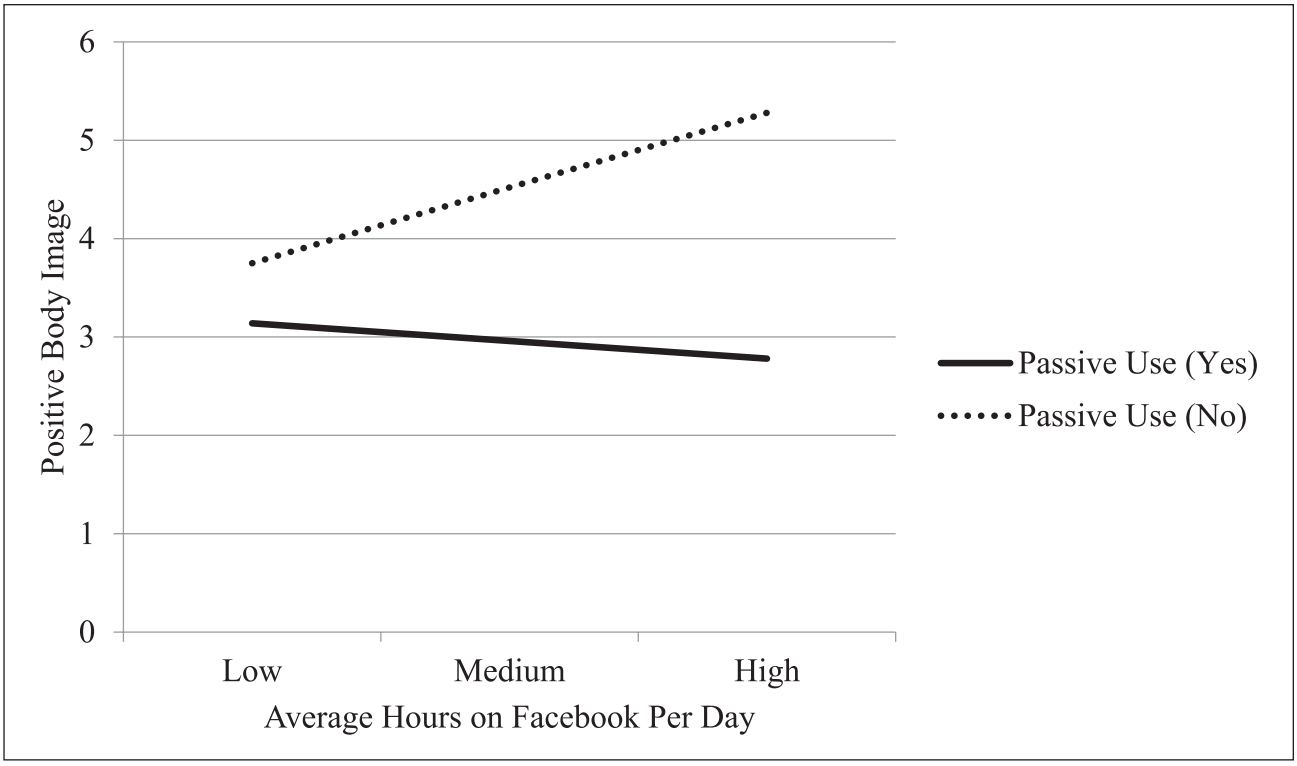

Figure 1. Interaction of passive Facebook use and average hours on Facebook per day on positive body image in women pregnant less than 5 years ago.

image among recently pregnant women. Individuals who passively used Facebook and spent the most time on this site had lowest positive body image.

The highest rates of both active and passive social media use were reported for Facebook. Facebook was the most popular social media site with nearly 90% of the sample reporting use of this site. Facebook is the most popular social media site with 2.93 billion monthly active users,[48] so use in our sample reflects its worldwide popularity. Given its widespread utilization, users may have many social connections on the site which increase opportunities for body-related comparisons.

The relatively lower rate of use for Instagram and Twitter may explain the lack of significant results for these platforms. For Twitter in particular, appearance-related social comparison may be less common given the platform relies more on text than images. If Instagram use were higher in this sample, it is likely that stronger relationships might be found between this platform and body image. Specifically, previous work has found that greater engagement with photo-based social media activities, and in particular appearance-focused accounts, is linked with worse body image outcomes.[20] Engagement in photo-based activities on Instagram has been linked to greater body dissatisfaction and drive for thinness through appearance-related social comparisons.[49]

In addition to its higher rate of use, social comparison may have been stronger on Facebook given the likelihood of interacting with peers on this site.[26] Research has found that women who commented on photos of attractive same-gender peers experienced more body dissatisfaction than women who commented on photos of family members, which is consistent with upward appearance comparison processes.[50] Facebook connections may reflect reciprocal connections with peers rather than idealized public figures. Research has distinguished the basic functions of Facebook as being relationship-focused, whereas Instagram is considered a media sharing site.[51] That is, Instagram users often "follow" public figures and "influencers" in a one-sided exchange (e.g., an Instagram user may follow many influencers, but influencers are unlikely to follow said user back). The one-sided nature of Instagram content may make that platform a less salient avenue for social comparison compared to Facebook. For instance, it may be possible to discount the reality of pregnancy-related celebrity images on Instagram (e.g., airbushing, lighting, greater resources at their disposal), compared to flattering images of real-life acquaintances. Nonetheless, engagement with idealized representations on social media may be particularly challenging for body image, as this can facilitate negative cognitive and emotional reactions, or self-effects.[52,53] For instance, Instagram

use has been found to impact body dissatisfaction through self-schemas, and these effects are strongest for individuals who have lower self-esteem.[54] We were not able to assess social comparison mechanisms in this study, so it is difficult to understand the degree to which factors such as similarity and authenticity of images impacted body image.

Individuals who endorsed passive use of Facebook and who spent the most time on the site had lower positive body image. This is consistent with work which demonstrated that Facebook use is associated with less body satisfaction[26] and that more time on social media relates to lower body image[28–30]; however, our study is the first to examine the interaction of these factors and to examine them in pregnancy-related body image. Spending more time on social media passively viewing content may exacerbate social comparison, particularly when people do not receive the support and closeness they hope for on social media sites like Facebook.[55] Social pressure to present a positive, happy life on social media may include presentations of one's "best" appearance.[26] Social comparison to others' seemingly ideal images may relate to less appreciation and respect for one's own body, particularly because these images are of realistic targets, such as friends.[26]

Since our study found that passive use of Facebook, more time on Facebook, and their combination especially were linked to lower pregnancy-related positive body image, these results have implications for intervention efforts. Specifically, given the impact that problematic body image can have on health-related behaviors, including breastfeeding and pregnancy-related weight changes,[7,36] clinicians may benefit from screening for social media use and providing information about its impact. Relatedly, since it can be challenging to break social media habits,[56] in addition to recommending reduced use of social media, particularly for passive users, therapists may encourage adjunctive coping skills such as support seeking, behavioral activation (e.g., pleasant event scheduling), and cognitive reframing strategies for individuals struggling with body image, weight, and eating concerns in pregnancy and postpartum. Self-compassion has been found to moderate the impact of lower appreciation of body functionality on depressive symptoms in postpartum women[57] and may be valuable in relation to postpartum social media use as well. That is, it is possible that encouraging self-compassion could serve to limit social comparison processes that may underlie lowered body image; however, this has yet to be formally evaluated. Additionally, our sample was not drawn from a clinical population, and as such these ideas are meant to stimulate development of future clinically relevant research rather than guide care.

Limitations

This study has several limitations. Although the body image measures we used had satisfactory internal consistency reliabilities and the factor structure was evaluated in this study, they had not been previously used in an abbreviated form with women who were not currently pregnant. We asked about Facebook, Twitter, and Instagram; other popular platforms (e.g., TikTok) may also be relevant to body image. Given the low frequency of racial and ethnic minority participants in our sample (i.e., our sample was comprised of approximately 80% White/Caucasian participants), we were not able to investigate patterns within specific minority group subsamples. It is possible that future studies with greater diversity, or studies that recruit with an aim to examine specific demographic characteristics (e.g., race/ethnicity, age, income, etc.), may yield different results. Due to small group sizes for non-users of the social media platforms (e.g., few participants were non-users of Facebook), the *t*-tests to evaluate our exploratory aim regarding group differences were underpowered. We collected information about time spent on social media, but did not collect information pertaining to the time spent on specific social media activities. Future research may benefit from examining time spent on specific activities to better understand the nuances of their impact. Furthermore, we acknowledge that by including individuals who had given birth within the past 4 years, there is variability in the recency of their pregnancy and inaccurate recall may be particularly likely for those with more time since their pregnancy. It is also possible that because these data were collected during 2021, COVID-19 pandemic-related factors may have influenced responses. The study was correlational, so the direction of influence between social media use and body image could run bidirectionally. For example, more Facebook use might influence lower positive body image, just as lower positive body image might influence more time engaging passively with Facebook. Future research may benefit from experimental designs which can better evaluate effects of social media behaviors, and the impact of exposure to idealized versus non-idealized images, on pregnancy-related body image. Relatedly, future work is warranted regarding the impact of creating and viewing authentic social media content.

Conclusions

Despite these limitations, this study adds to the literature on social media use and body image. Our study is the first to examine social media use in the context of pregnancy-related body image. While literature supports the negative impact of social media use on body image in women in general, work examining pregnancy-related body image is minimal. Additionally, most of the existing research has focused on one social media platform, whereas our study allowed for the potential to distinguish between different types of platforms (e.g., Instagram's image-focused content versus Twitter's text-focused content). Although we did not find effects for Instagram or Twitter, future research may differ as social media use continues to change. Results show that social

media use is high, and spending more time on Facebook utilizing it in a passive way relates to less positive feelings toward the body. Thus, using Facebook in more time-limited, active, and purposeful ways may be less negatively impactful for body image. For instance, future work may benefit from considering whether utilization of groups, such as pregnancy, breastfeeding, and postpartum support groups on Facebook help or hinder positive body image. Despite their intended role to provide support, these types of virtual support groups may also create social pressure. Additional research is needed to understand the extent to which body positive content is associated with pregnancy-related body image. Some women may be generally passive users of social media overall, but more active in specific, smaller subgroups (e.g., support groups; motherhood community groups) on these sites. Additionally, given that membership in these groups reflect those who have greater similarity compared to social media users overall, this may impact social comparison processes as well. Content analysis and other investigations of visual and text content in maternal-focused social media groups may yield even more insight into the processes that could affect body image for users. Additionally, qualitative research including interviews or focus groups could shed light on body-image-related social media experiences. In conclusion, future work should consider other factors that may be relevant to the impact of social media use on pregnancy-related body image.

Declarations

Ethics approval

This study was reviewed by The Office for Research Protections at Penn State University and deemed exempt from formal Institutional Review Board (IRB) review. Specifically, the study met the criteria for exempt research and was granted approval number STUDY00017190 under the exempt designation based on university policies and related federal regulations.

Consent to participate

The study was deemed exempt by the IRB, and as such the need for written consent was waived by the Office of Research Protections as they deemed that it posed no more than minimal risk to participants under the exempt designation. Participants were given information about the study and they clicked a button indicating their willingness to participate, as exemption from written consent still requires provision of study information to participants.

Consent for publication

Not applicable.

Author contribution(s)

Diane L Rosenbaum: Conceptualization; Writing – original draft; Writing – review & editing; Formal analysis.
Meghan M Gillen: Writing – review & editing; Writing – original draft.
David J Hutson: Data curation; Funding acquisition; Investigation; Methodology; Writing – review & editing; Writing – original draft.

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Availability of data and materials

The dataset analyzed during the current study are available from the corresponding author on reasonable request.

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Supplemental material

Supplemental material for this article is available online.

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