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ORIGINAL ARTICLE

Contributions of Social Comparison and Self-Objectification in Mediating Associations Between Facebook Use and Emergent Adults' Psychological Well-Being

Emily Hanna, MSW,[1] L. Monique Ward, PhD,[2] Rita C. Seabrook, MS,[2] Morgan Jerald, MS,[2] Lauren Reed, MSW, PhD,[3] Soraya Giaccardi, MS,[2] and Julia R. Lippman, PhD[4]

Abstract

Although Facebook was created to help people feel connected with each other, data indicate that regular usage has both negative and positive connections to well-being. To explore these mixed results, we tested the role of social comparison and self-objectification as possible mediators of the link between Facebook use and three facets of psychological well-being: self-esteem, mental health, and body shame. Participants were 1,104 undergraduate women and men who completed surveys assessing their Facebook usage (minutes, passive use, and active use), social comparison, self-objectification, and well-being. Data were analyzed using structural equation modeling, testing separate models for women and men. Models for each gender fit the data well. For women and men, Facebook use was associated with greater social comparison and greater self-objectification, which, in turn, was each related to lower self-esteem, poorer mental health, and greater body shame. Mediated models provided better fits to the data than models testing direct pathways to the mediators and well-being variables. Implications are discussed for young people's social media use, and future directions are provided.

Keywords: social networking, mental health, objectification, social comparison

Introduction

Although Facebook was created to help people feel connected with each other, research indicates that regular usage has both negative and positive associations with psychological well-being. Psychological well-being includes many components, three of which are examined here: self-esteem, mental health, and body shame. In terms of self-esteem, research yields conflicting findings regarding contributions of Facebook use. While some studies find that Facebook use is associated with decreased self-esteem,[1] others report the opposite,[2] and still others report that outcomes depend on a student's year in college.[3] Similarly, studies of the link between Facebook use and mental health yield mixed findings. Some report that frequent Facebook use is associated with increased depressive symptoms[4–6] and psychological distress,[7] whereas others do not find a link between social media use and clinical depression.[8] Finally, evidence for a connection between social media use and body shame is mostly indirect and conditional. Some studies find that use of social media predicts self-objectification, which predicts body shame.[9–11] Others report direct effects on body shame for time spent on the Internet, but not Facebook use, specifically,[12] or report that differing types of Facebook use affect appearance-orientation.[13] These findings suggest that connections between Facebook use and psychological well-being (hereafter referred to as ''well-being'') are likely, but could be quite complex.

Social comparison as a mediator

Efforts to address these mixed findings have often turned to potential mediators, such as social comparison. According to social comparison theory,[14] when confronted with information about others, people often engage in social comparison processes by relating the information back to themselves.[15] Given the stream of detailed information about acquaintances and friends displayed on Facebook, it is an ideal platform for social comparison processes.[1,16] However, upward social comparison, or comparing oneself with others who possess more positive characteristics, has been shown to

[1]School of Social Work, University of Michigan, Ann Arbor, Michigan.
[2]Department of Psychology, University of Michigan, Ann Arbor, Michigan.
[3]School of Education, University of California, Santa Barbara, Santa Barbara, California.
[4]Research Center for Group Dynamics, University of Michigan, Ann Arbor, Michigan.

Table 1. Demographic Characteristics of Sample

Variable	*Women*	*Men*	*t(df)/χ^2(df)*	*Cohen's d/W*
Age (years)	19.11	19.43	5.57 (1101)***	0.35
White/Caucasian	72.8%	70.5%	0.63 (1)	0.02
Asian American	15.9%	15.7%	0.01 (1)	0.00
Black/African American	4.1%	2.9%	1.00 (1)	0.03
Latino/Hispanic	3.8%	3.6%	0.02 (1)	0.00
Middle Eastern	2.2%	3.1%	0.98 (1)	0.03
Heterosexual	92.5%	92.9%	0.05 (1)	0.01
Raised in US	94.8%	94.0%	0.33 (1)	0.02

***$p < 0.001$.

maintain or exacerbate negative self-evaluations[17–20] and increase negative affect.[17,21–23] Such comparisons may occur frequently with Facebook use because users tend to disproportionately represent positive life developments,[24] portray themselves to be happier than they actually are,[25] and convey their ideal selves through selective self-presentation.[24,26–28]

Several findings indicate that greater time spent on Facebook is associated with more social comparison, which, in turn, is associated with more depressive symptoms.[4,7] For example, a diary study found that social comparison mediates the association between the number of Facebook logins and depressive symptoms.[4] Social comparison has also been shown to mediate the relationship between Facebook use and self-esteem.[1] Moreover, it is argued that social comparison is likely be an important mediator linking social media use to body image concerns, such as body shame.[29] Together, this research presents evidence for a likely mediating role of social comparison in the association between Facebook use and well-being. We test that potential mediating role, in this study.

Self-objectification as a mediator

Facebook use may also influence well-being through self-objectification. Objectification theory[30] argues that repeated exposure to cultural experiences of sexual objectification will gradually lead individuals to adopt this perspective of themselves, known as self-objectification. In doing so, individuals learn to value their bodies for how they look rather than what they can do. Both mainstream and social media feature content with high levels of objectifying imagery.[31] Analyses of Facebook profiles indicate that 42–45 percent are high in bodyism, featuring full-body shots and not just faces, and 36–41 percent feature clothing that is revealing or highly revealing.[32] One study of 200 Facebook profiles found that 25 percent had seminude or sexually provocative photos.[33]

Given this content, several studies find that use of Facebook (or MySpace) is associated with greater self-objectification.[9–11,34–39] In turn, a large body of literature links self-objectification to diminished well-being,[40] including greater depressive symptoms[41–43] and decreased self-esteem.[44] Based on these findings, we anticipated that Facebook use would be associated with greater self-objectification, which, in turn, would predict diminished well-being.

The current study

Although research demonstrates that Facebook use is sometimes linked with diminished mental health and lower self-esteem, the mechanisms behind these findings are unclear. We proposed self-objectification and social comparison as potential mediators of relationships between Facebook use and well-being. We chose to examine Facebook use multidimensionally,[45–47] examining amount of use, passive use (e.g., reading others' content), and active use (e.g., posting content). Also, because levels of Facebook use differ by gender,[48] we chose to test separate models for women and men. We proposed the following hypotheses:

H1: Social comparison and self-objectification will mediate relations between Facebook use and well-being among women such that women who engage in more Facebook use will report higher levels of social comparison and self-objectification, which, in turn, will predict lower self-esteem, reduced mental health, and greater body shame.

H2: Social comparison and self-objectification will mediate relations between Facebook use and well-being among men such that men who engage in more Facebook use will report higher levels of social comparison and self-objectification, which, in turn, will predict lower self-esteem, reduced mental health, and greater body shame.

Table 2. Descriptive Statistics for Variables of Interest

	Women			*Men*			*Gender difference*	
Measure	α	M	SD	α	M	SD	F*(1, 1102)*	*Partial η^2*
FB minutes	—	3.11	1.29	—	2.72	1.19	23.68***	0.02
FB passive	0.82	1.98	0.88	0.83	1.67	0.79	35.17***	0.03
FB active	0.83	2.01	0.72	0.90	1.64	0.82	60.77***	0.05
Surveillance	0.89	4.34	1.04	0.89	3.83	1.07	61.58***	0.05
Enjoy sexualization	0.88	4.20	0.84	0.89	4.35	0.85	6.32*	0.01
Sexual appeal	0.81	1.88	0.47	0.81	1.63	0.50	71.52***	0.06
Social comparison	0.91	3.12	0.75	0.90	2.66	0.70	102.78***	0.09
SSE performance	0.83	3.45	0.62	0.81	3.63	0.57	22.74***	0.02
SSE social	0.85	2.98	0.72	0.85	3.19	0.75	20.68***	0.02
Depression	0.84	0.89	0.80	0.84	0.77	0.76	7.62**	0.01
Anxiety	0.82	0.85	0.78	0.79	0.64	0.65	20.76***	0.02
Body shame	0.84	2.93	1.09	0.83	2.55	0.94	34.67***	0.03

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.
FB, Facebook; SSE, State Self-Esteem.

Materials and Method

Participants and procedure

Surveys were completed by 1,167 undergraduates aged 17–24 (718 women and 449 men). We excluded participants who had never used Facebook or who reported missing data on main study variables. This exclusion yielded a final sample of 1,104 participants aged 17–24 that included 690 women and 414 men. Full sample descriptives are provided in Table 1. Participants completed paper-and-pencil surveys for psychology subject pool credit during small-group administrations in a research laboratory. Administration took ~45 minutes, including consent and debriefing procedures.

Measures

Facebook use. Participants indicated the amount of time they spend using Facebook on an average day by six response options (1 = less than 10 minutes; 6 = more than 3 hours). Passive Facebook use was assessed via a scale developed by Manago et al.[9] Participants responded to six items prefaced with the following prompt: ''*On an average visit to Facebook*'': Sample items included, ''*How many distinct stories/ status updates in your feed do you read?*'' and ''*How many times do you 'like' what someone has posted?*'' Responses were provided on a scale anchored by 0 (*none*) and 5 (*15+*). A mean score was computed such that higher scores indicate more passive Facebook use. To assess active Facebook use,[9] participants were presented with the prompt, ''*How frequently do you*'': followed by eight items such as ''*post pictures?'' and ''update your status?*'' Response options ranged from 0 = never to 5 = several times a day. A mean score was computed such that higher scores indicate more active Facebook use.

Self-objectification. Following the work of Manago et al.,[9] self-objectification was conceptualized to represent a form of objectified body consciousness, whereby individuals are preoccupied with how their body appears to others, and was measured by three scales. The first scale, the Surveillance subscale of the Objectified Body Consciousness Scales–Youth (OBC-Y),[49] was used to index the extent to which participants monitor their appearance. Participants indicated their level of agreement with four items on a 6-point scale (1 = strongly disagree; 6 = strongly agree). A sample item is ''During the day, I think about how I look many times.'' Mean scores were computed such that higher scores indicated greater body surveillance.

The second scale was the Enjoyment of Sexualization Scale,[50] which measures the extent to which individuals attempt to and enjoy emphasizing their own sexiness. Although the measure was initially designed for women, subsequent studies have found it to be valid for men.[51] Participants noted agreement with eight items using a 6-point scale (1 = strongly disagree; 6 = strongly agree). Sample items include ''I love to feel sexy'' and ''I like showing off my body.'' Mean scores were computed such that higher scores indicate greater enjoyment of sexualization.

The third measure, The Sexual Appeal Self-Worth Scale,[52] assessed the extent to which participants base their self-worth on their sexual appeal. Participants received the prompt ''How would you feel about yourself if…'' and were asked to indicate whether they would feel better or worse about themselves in 23 situations, 12 of which reflected their

TABLE 3. ZERO-ORDER CORRELATIONS BETWEEN VARIABLES OF INTEREST (WOMEN ABOVE DIAGONAL, MEN BELOW)

	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*
1. FB minutes	—	0.56***	0.45***	0.18***	0.17***	0.24***	0.19***	−0.08*	−0.09*	0.03	0.07	0.11**
2. FB passive	0.58***	—	0.47***	0.21***	0.25***	0.29***	0.24***	−0.08*	−0.10*	0.07	0.10**	0.16***
3. FB active	0.47***	0.52***	—	0.19***	0.14***	0.10**	0.11**	0.06	−0.00	0.03	0.04	0.06
4. Sexualization	0.11*	0.15**	0.13*	—	0.40***	0.47***	0.33***	−0.03	−0.14***	0.15***	0.15***	0.25***
5. Surveillance	0.24***	0.27***	0.11*	0.38***	—	0.54***	0.64***	−0.21***	−0.52***	0.34***	0.26***	0.52***
6. Sexual appeal	0.29***	0.26***	0.15**	0.41***	0.50***	—	0.51***	−0.22***	−0.34***	0.25***	0.21***	0.39***
7. Social comparison	0.27***	0.29***	0.18***	0.31***	0.59***	0.42***	—	−0.37***	−0.56***	0.38***	0.27***	0.53***
8. SSE performance	−0.13**	−0.06	0.05	−0.02	−0.29***	−0.19***	−0.36***	—	0.59**	−0.48**	−0.39***	−0.33***
9. SSE social	−0.19***	−0.13*	−0.03	−0.17**	−0.52***	−0.33***	−0.52***	0.60***	—	−0.54***	−0.41***	−0.50***
10. Depression	0.14**	0.05	0.03	0.11*	0.31***	0.25***	0.30***	−0.46***	−0.53***	—	0.65***	0.36***
11. Anxiety	0.12*	0.14**	0.04	0.07	0.22***	0.13*	0.28***	−0.42***	−0.42***	0.65***	—	0.31***
12. Body shame	0.26***	0.19***	0.11*	0.18***	0.55***	0.39***	0.54***	−0.37***	−0.52***	0.33***	0.27***	—

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

sexual attractiveness/appeal. Sample items include ''You were wearing an outfit that you know looks good on you'' and ''You gained 30 pounds.'' Responses were indicated using a 7-point scale ranging from −3 (''Ugh, I would feel worthless'') to +3 (''Wow! I would feel really great about myself''). Higher scores, drawing on absolute values, reflect greater emphasis on sexual appeal in defining self-worth.

Self-esteem. Self-esteem was assessed by the 20-item State Self-Esteem scale.[53] This measure consists of three subscales: Performance Self-Esteem (seven items; e.g., ''I feel like I am not doing well at school''), Appearance Self-Esteem (six items; e.g., ''I feel satisfied with the way my body looks right now''), and Social Self-Esteem (seven items; e.g., ''I am worried about what other people think of me''). Responses to each of the 20 statements were made on a 5-point scale (1 = not at all; 5 = extremely). Mean scores are calculated such that higher scores indicate higher self-esteem. This study used only the performance and social self-esteem subscales.

Social comparison. Social comparison through social networking sites was measured using a scale adapted from the Iowa Netherlands Comparison Orientation Measure.[54] Items were added and adjusted to frame social comparison in a social networking context. The scale consisted of 18 items and addressed upward and downward comparisons concerning appearance, social life, and in general. Participants were asked to report how much they agreed with each statement on a 5-point scale (1 = definitely disagree; 5 = definitely agree). An example item read, ''I've felt pressure from the people I see on social networking sites to have a perfect body.'' Mean scores were calculated such that higher scores indicate greater social comparison.

Depression and anxiety. Psychological symptoms were measured using the Brief Symptom Inventory (BSI).[55] This measure asks participants, ''During the past 7 days, how much were you distressed by…,'' followed by several items assessing participants' mental health. Responses are provided using a 5-point scale (0 = not at all; 4 = extremely). Although the full BSI contains 9 subscales and 53 items, our study assessed only 5 subscales, of which 2 are analyzed in this study: depression (6 items; e.g., ''Feeling no interest in things'') and anxiety (5 items; e.g., ''Feeling tense or keyed up''). Mean scores were computed such that higher scores indicate more symptoms of anxiety and depression. Scores were reversed in the analyses of the models.

Statistical analysis plan

We used Structural Equation Modeling with MPlus to examine whether connections between Facebook use and well-being are mediated by self-objectification and social comparison. For each gender, we first ran a measurement model. Next, we tested our proposed structural model in which self-objectification and social comparison mediate relationships among Facebook use, self-esteem, mental health, and body shame. We then calculated the bootstrapped indirect effects and confidence intervals (CIs). If the CI of the indirect effect does not contain zero, we can conclude that there is significant evidence of mediation.[56] Finally, we compared our proposed model to an alternative model in which Facebook use directly predicts self-objectification, social comparison, self-esteem, mental health, and body shame to determine whether our proposed mediated model provides a better fit to the data than a model with direct pathways between Facebook use and our outcomes. We used the AIC to compare the fit of our models. The Akaike's Information Criterion (AIC) is a parsimony-adjusted fit index that is used to compare the fit of nonhierarchical models. The model with the lower AIC is preferred.[57]

Results

Descriptive statistics are presented in Table 2 and zero-order correlations are presented in Table 3. In creating the variables for the models, we used the item-to-construct balance technique to create three parcels for the indicators for social comparison and body shame.[58]

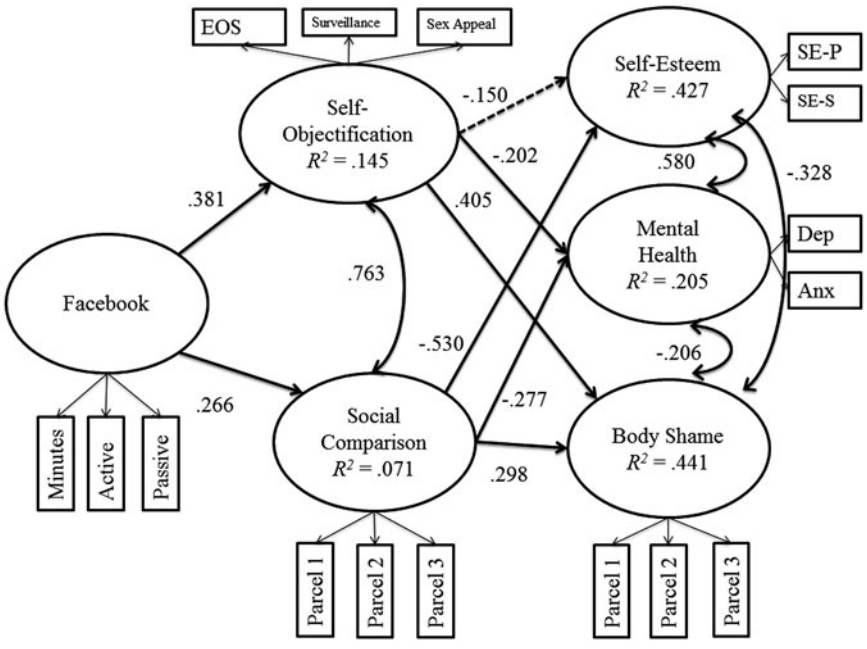

FIG. 1. Final mediated model for women. EOS, enjoyment of sexualization scale.

Table 4. Bootstrapped Sum of Standardized Indirect Effects and 95% Confidence Intervals

Gender	*Outcome*	*IE*	*95% CI*
Women			
	Self-esteem	−0.198	−0.255 to −0.127
	Mental health	−0.151	−0.201 to −0.103
	Body shame	0.233	0.171 to 0.298
Men			
	Self-esteem	−0.274	−0.359 to −0.208
	Mental health	−0.188	−0.259 to −0.124
	Body shame	0.309	0.221 to 0.407

CI, confidence interval; IE, indirect effect.

Results for women (H1)

The measurement model for women fit the data well, χ^2 (89) = 331.434, $p < 0.01$, root-mean-squared error of approximation (RMSEA) = 0.062 with 90% CI (0.055–0.069), comparative fit index (CFI) = 0.956, standardized root mean of the residual (SRMR) = 0.041, and AIC = 23852.911. We then tested the proposed mediated model (Fig. 1; dashed lines indicate nonsignificant paths). The proposed structural model fit the data well, χ^2 (92) = 338.946, $p < 0.01$, RMSEA = 0.061 [0.054–0.068], CFI = 0.955, SRMR = 0.043, and AIC = 23854.423, and the indirect effects were significant (Table 4). Finally, we tested an alternative model in which Facebook use directly predicts each of our outcome measures (Fig. 2). This model did not provide a good fit to the data, χ^2 (95) = 718.904, $p < 0.01$, RMSEA = 0.096 [0.089–0.102], CFI = 0.886, SRMR = 0.165, and AIC = 24228.381. Our proposed model, AIC = 23854.423, fit the data better than the alternative model, AIC = 24228.381. We conclude that H1 was supported and social comparison and self-objectification mediate relations between Facebook use and well-being.

Results for men (H2)

The measurement model fit the data well, χ^2 (89) = 301.864, $p < 0.01$, RMSEA = 0.073 [0.064–0.082], CFI = 0.936, SRMR = 0.047, and AIC = 14422.976. We then tested our proposed mediated model (Fig. 3). The mediated model provided an acceptable fit to the data, χ^2 (92) = 305.040, $p < 0.01$, RMSEA = 0.072 [0.063–0.081], CFI = 0.936, SRMR = 0.048, and AIC = 14420.152, and the indirect effects were significant (Table 4). Finally, we tested the alternative model (Fig. 4). The alternative model did not provide an acceptable fit to the data, χ^2 (95) = 522.870, $p < 0.01$, RMSEA = 0.100 [0.092–0.109], CFI = 0.871, SRMR = 0.139, and AIC = 14631.982. We found our proposed mediated model, AIC = 14420.152, fit the data better than the alternative model, AIC = 14631.982. We conclude that H2 is supported.

Our results suggest that for both women and men self-objectification and social comparison mediate the relationships between Facebook use and well-being. The indirect effects of Facebook use on each outcome measure were significant, and the mediated models provided a better fit to the data than models with direct pathways between Facebook use and self-objectification, social comparison, self-esteem, mental health, and body shame.

Discussion

Facebook exposes users to steady information about other people's lives and is a platform that allows users to package themselves in a socially desirable way. Given the constant stream of pictures and information, Facebook is an ideal medium for users to engage in social comparison and self-objectification processes. Prior research suggests that self-objectification and social comparison lead to poorer mental health outcomes. Given the mixed findings between Facebook usage and well-being, we examined social comparison and self-objectification as mediators between Facebook use and depressive symptoms, anxiety, body shame, and self-esteem.

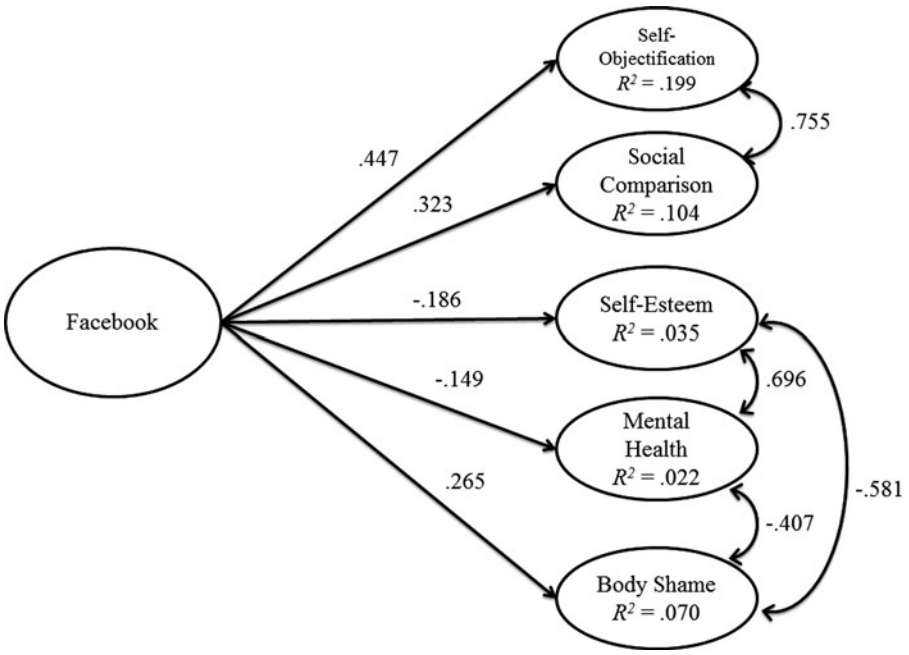

FIG. 2. Alternative model for women.

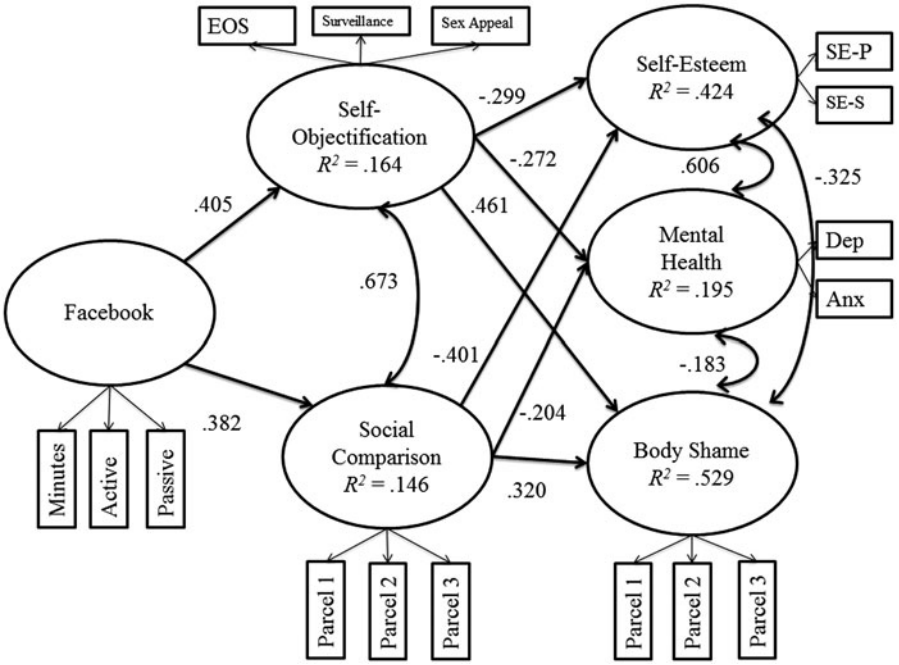

FIG. 3. Final mediated model for men. EOS, enjoyment of sexualization scale.

For both sexes, we found that social comparison and self-objectification mediate the relationship between Facebook use and our three indicators of psychological well-being: self-esteem, mental health, and body shame. Our results correspond with past research highlighting social comparison as a mediator in associations between Facebook use and various dimensions of well-being.[1,4] Our findings also support past research that shows self-objectification to be associated with Facebook use, mental health, and body shame.[9,10]

Contrary to some previous work,[4,59] our findings also indicate that these mediation processes apply to the experiences of women and men. Self-objectification and body shame are often studied exclusively among women, but our study demonstrates that these constructs are important to examine among men, as well. Our findings also indicate that diminished well-being is linked to Facebook use even among youth who use Facebook moderately (i.e., 30–60 minutes a day), and is not necessarily reserved for those reporting social media addictions.[60]

This study has several limitations that should be noted. First, our sample is representative of only a small portion of the population using social media. As our sample consists of college students aged 18–24, the results may not be generalizable to older adults or to young adults who are not enrolled in college. Our sample is also predominantly Caucasian, and we therefore cannot determine whether these results differ by race/ethnicity. Second, because all of our measures were self-report, participants may have been biased in their responses,

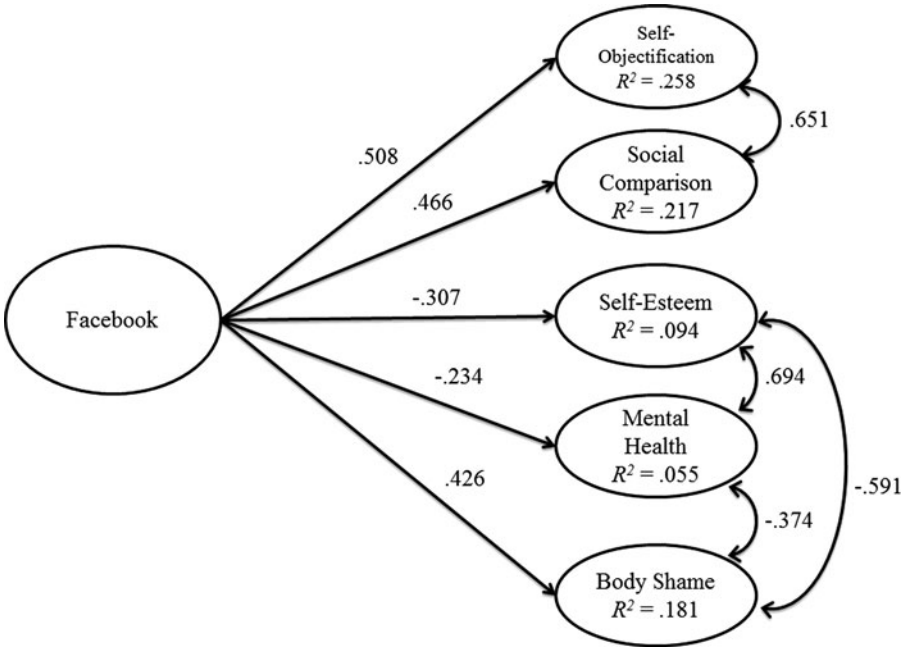

FIG. 4. Alternative model for men.

and may not have accurately estimated their Facebook use. Third, we assessed only three components of psychological well-being, and future efforts should extend this work to other components of general well-being, such as life satisfaction, suicidal ideation, and physical health. Finally, these cross-sectional data do not permit us to make conclusions about causality. It is possible that young people with more negative mental health symptoms choose to engage in more Facebook use. Future studies should test this model longitudinally with more diverse samples to address these concerns.

Overall, this research demonstrates the importance of social media usage for young people's well-being. Facebook users often present only positive highlights from their life online. Young people using Facebook may lose sight of this reality, comparing their low moments with their Facebook friends' highpoints. It may be useful to advise people struggling with depression, anxiety, or low self-esteem to limit their use of Facebook or adopt strategies for making fewer social comparisons. Indeed, some clinicians may want to assess social media use during mental health evaluations of young adults who are experiencing anxiety and depression. It may also be important for clinicians, throughout treatment, to take into account how social media use affects (or does not affect) their client's symptomatology and address the client's social media use if necessary.

Author Disclosure Statement

No competing financial interests exist.

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Address correspondence to:
Dr. L. Monique Ward
Department of Psychology
University of Michigan
530 Church Street
Ann Arbor, MI 48109

E-mail: ward@umich.edu