Facebook and body image concern in adolescent girls: A prospective study

Marika Tiggemann[a]

and

Amy Slater[a,b]

[a] School of Psychology

Flinders University

[b] Centre for Appearance Research

University of the West of England

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Please address correspondence to:
Dr Marika Tiggemann, School of Psychology, Flinders University, GPO Box 2100, Adelaide, South Australia, 5001.
Email: Marika.Tiggemann@flinders.edu.au

Abstract

Objective: The primary aim of the study was to examine the relationship across time between Facebook use and body image concern in adolescent girls. **Method:** A sample of 438 girls in the first two years (Years 8 and 9) of high school (aged 13-15 years) at Time 1 completed questionnaire measures of Facebook consumption and body image concerns, and again two years later (Time 2). **Results:** Facebook involvement increased substantially over the two year time period. Body image concerns also increased. Number of Facebook friends was found to prospectively predict the observed increase in drive for thinness. On the other hand, internalisation and body surveillance prospectively predicted the observed increase in number of Facebook friends. **Discussion:** It was concluded that Facebook 'friendships' represent a potent socio-cultural force in the body image of adolescent girls.

Keywords: Facebook; drive for thinness; body image; adolescents; social networking

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Introduction

Widespread dissatisfaction with body shape and weight has been well documented among adolescent girls. Such body dissatisfaction is generally attributed to sociocultural forces, of which the mass media are a pervasive and powerful example.[1,2] In support, an extensive body of correlational research has demonstrated cross-sectional relationships between the consumption of traditional media (fashion magazines or television) and various indices of body dissatisfaction or disordered eating.[3] A smaller body of research has likewise demonstrated a relationship between Internet usage and body dissatisfaction.[4-7]

One particular form of Internet use that has increased markedly in popularity, particularly among adolescent girls,[8] is social networking. Social networking sites differ from traditional media in that they allow individuals to construct personal profiles, to share photos and information, to choose when and how they wish to engage, and to interact with 'friends' in their networks. Facebook is currently the most popular social networking site with over 1.15 billion current users world-wide.[9] A recent systematic review concluded that its use is associated with body image concerns and disordered eating in women and adolescent girls.[10]

However, the small amount of existing evidence is largely correlational in design and thus cannot determine the direction of causality between variables.[10] For example, while the sociocultural model[1,2] would predict that engagement with Facebook leads to body image concerns, the converse causal direction is equally plausible. That is, those women and girls who are most dissatisfied with or invested in their appearance may turn to the Internet and social networking in order to seek

information or reassurance. Only a longitudinal methodology can test for temporal precedence, a minimal condition for the determination of a causal relationship.[11]

Thus, the aim of the present study was to present a prospective analysis of Facebook use and body image concern in adolescent girls. In particular, the longitudinal design allowed examination of whether the proposed cause (in this case Facebook use) is temporally antecedent (occurs before) the proposed effect (body image concern).

Method

Participants

Participants were 438 girls recruited from 18 schools across South Australia, who completed the questionnaire twice, initially (Time 1) when they were in Years 8 and 9 (the first two years of high school) with a mean age of 13.6 years ($SD = 0.7$), and again two years later (Time 2). The girls were a subset of a larger cross-sectional study (Time 1 $N = 1087$) investigating Internet use and body image.[6] Attrition was largely due to girls having moved schools or being away on the day of assessment.

Measures

Facebook use. Girls were asked whether or not they had a Facebook profile, and if so, how much time they spent on Facebook and how many 'friends' they had. These two measures (time, number of friends) have become the most common indicators of level of engagement with Facebook.[10]

Body image concerns. Internalisation of beauty ideals was measured by three previously used items from the Sociocultural Attitudes Toward Appearance Questionnaire.[6,12] Body Surveillance was assessed by the Objectified Body Consciousness Scale–Youth.[13] Internalisation and body surveillance have been suggested as precursors to drive for thinness,[1,14] which was assessed by the Drive for

Thinness Scale of the Eating Disorder Inventory[15] as an indicator of the characteristics associated with anorexia nervosa. All scales have demonstrated reliability and validity.[12,13,15]

Procedure

The protocol was approved by the Flinders University Research Ethics Committee. Active parental consent was required at both time points, as well as assent by the girls.

Results

Changes over Time

Table 1 displays the means at Times 1 and 2. It can be seen that ownership of a Facebook profile increased over the two years to over 90%, as did the amount of time spent there and the mean number of Facebook friends. All the body image concerns also increased significantly over this time period.

Predictors of Time 2 Body Image Concern

Those girls who initially had a Facebook profile scored significantly higher than their non-Facebook peers on drive for thinness two years later, $t(431)=2.86$, $p<.01$. In addition, as can be seen from Table 2(a) which displays the cross-lagged correlations between Time 1 Facebook use and Time 2 body image concerns, initial time spent on Facebook was significantly correlated with Time 2 internalisation and body surveillance. Number of friends at Time 1 was positively correlated with all of subsequent internalisation, body surveillance and drive for thinness two years later.

However, such across-time positive correlations do not of themselves indicate temporal precedence. A series of hierarchical multiple regression analyses was conducted to test the temporal precedence of Facebook use to body image concern. Temporal precedence is established when a variable predicts subsequent increase in

another variable, controlling for initial levels of the outcome variable.[16] It is critically important for longitudinal analyses to control for the initial levels of the outcome because otherwise cross-lagged (across-time) correlations may simply reflect synchronous (within-time) correlations. For each regression, the relevant Time 1 measure of body image concern (internalisation, body surveillance, drive for thinness) was entered in Step 1 and the proposed predictor (Facebook time/friends) entered in Step 2. Time 2 body image concern was the outcome variable.

As can be seen from the ΔR^2 values in Table 2(a), initial Facebook time did not predict any of the subsequent body image concerns. Importantly, however, the initial number of Facebook friends did predict the increase in drive for thinness, as well as internalisation.

We also examined the possibility of the reverse direction of causation, that is, whether initial levels of body image concern predicted any change in Facebook use (Table 2(b)). While no body image concern predicted increase in Facebook time, both internalisation and body surveillance, but not drive for thinness, predicted the increase in number of friends.

Discussion

The major findings of the study are clear. One aspect of Facebook use was associated with subsequent higher levels of body image concerns. Importantly, the longitudinal design allowed rigorous testing by linear regression analyses with lagged endogenous variables[11] to show that the number of Facebook friends prospectively predicted the observed increase in drive for thinness (and its precursor internalisation) two years later. The correlational findings are consistent with the small but growing body of literature associating Facebook use with body image concerns.[10] The longitudinal results, however, extend these findings to show that engagement with

Facebook (as measured by the number of friends) is temporally antecedent to drive for thinness, consistent with its postulated causal role. This is a novel finding of considerable significance.

The longitudinal design was also able to show some relations operated in the reverse direction. In particular, internalisation and body surveillance were shown to prospectively predict increased number of friends, a very important sign of popularity and esteem among adolescent girls.[17] This temporal sequence contrasts with the finding for drive for thinness. It seems likely that internalisation and body surveillance occur earlier in the developmental sequence across adolescence, consistent with their theoretical causal role in the development of disordered eating.[1,14] Accordingly, future research might usefully sample younger girls, especially given that more than 70% of girls already had a Facebook profile at Time 1.

While the findings do not speak to precise underlying mechanisms, only number of Facebook friends, not time spent, prospectively predicted and was itself predicted by any body image concern. It may be that number of Facebook friends is simply a better measure of engagement with Facebook than time. Alternatively, an increased number of Facebook friends may provide girls with greater opportunity to rapidly make multiple social comparisons, itself shown to be associated with body image concern.[18] Further, these comparisons are likely to be with somewhat idealised images, in that girls mostly post photographs in which they look good or are doing something 'cool' (and can be digitally altered). In addition, given the large number of Facebook friends held by the girls, these must include many people personally not known to the Facebook user (distant peers or celebrities).[19]

The study has a number of practical implications. The most obvious would be for individuals to limit their involvement with Facebook or other social networking

sites. In addition, media literacy programs, which have shown some success in combating negative body image,[20] should include specific consideration of social networking sites. Adolescent girls could usefully be educated to become more critically aware of the idealized images presented to them online (even of 'peers').

As in all studies, the above findings need to be considered in the context of a number of limitations. The most obvious is that the measures of Facebook usage were broad and self-report. Future research could use more sophisticated technologies, such as computer tracking, to obtain more precise and objective measures of Facebook time. Measures were also only taken at two points in time. Future research might usefully take multiple measures across the entire developmental stage of adolescence to track more precisely differential changes in the measures of body image concern and Facebook use. Such research would contribute to enhanced knowledge about the role of Facebook, an increasingly important social medium, in contemporary adolescent life.

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Table 1.

Means (SD in parentheses) for Facebook Use and Body Image Concerns for the Entire Sample

	Time 1	Time 2	t
Facebook			
Profile	71.7%	91.3%	
Time	58.82 (78.01)	100.52 (142.29)	5.62**
Friends	125.90 (141.65)	424.89 (337.86)	21.52**
Body Image			
Internalisation	7.79 (2.90)	8.63 (3.09)	5.95**
Body Surveillance	18.49 (5.71)	20.34 (5.29)	7.03**
Drive for Thinness	17.65 (9.32)	20.51 (9.73)	7.14**

Note. **$p < .001$

Table 2.

Correlations (r) and Hierarchical Regression Results Predicting Time 2 (a) Body Image Concerns (b) Facebook Usage, Controlling for Time 1 Outcome Values

(a)		Time 2		
		Internalisation	Body Surveillance	Drive For Thinness
Time 1	r	.10*	.16**	.09
Facebook Time	Total R^2	.274	.263	.395
	ΔR^2	.001	.002	.001
	ΔF	0.83	0.98	0.60
Time 1	r	.17**	.15**	.14**
Facebook Friends	Total R^2	.277	.262	.421
	ΔR^2	.009	.004	.014
	ΔF	5.25*	2.19	9.56**

(b)		Time 2	
		Facebook Time	Facebook Friends
Time 1	r	.09	.19**
Internalisation	Total R^2	.038	.401
	ΔR^2	.002	.022
	ΔF	0.94	13.97**
Time 1	r	.05	.18*
Body Surveillance	Total R^2	.033	.404
	ΔR^2	.001	.017
	ΔF	0.25	10.85**
Time 1	r	.03	.06
Drive for Thinness	Total R^2	.032	.383
	ΔR^2	.000	.005
	ΔF	0.00	3.33

Note. *p < .05; **p < .01