COMPUTERS IN HUMAN BEHAVIOR

Sex differences in jealousy over Facebook activity

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ABSTRACT

Forty heterosexual undergraduate students (24 females, 16 males) who were currently in a romantic relationship filled out a modified version of The Facebook Jealousy questionnaire (Muise, Christofides, & Desmarais, 2009). The questionnaire was filled out twice, once with the participant's own personal responses, and a second time with what each participant imagined that his/her romantic partner's responses would be like. The data indicated that females were more prone to Facebook-evoked feelings of jealousy and to jealousy-motivated behavior than males. Males accurately predicted these sex differences in response to the jealousy scale, but females seemed unaware that their male partners would be less jealous than themselves.

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1. Introduction

Since Facebook burst upon the virtual scene in 2004, it has become the pre-eminent social networking site (SNS) on the internet (Anderson, Fagan, Woodnutt, & Chamorro-Premuzic, 2012). As of 2011, Facebook had 800 million active users, more than 50% of whom logged onto the site on any given day (Facebook, 2011). By the spring of 2009, 960 out of 1002 students at the University of Missouri reported having a Facebook page, and 78% of these students accessed Facebook more than twice a day (Sheldon, Abad, & Hinsch, 2011). These numbers are almost certainly higher now, and there is evidence that most students spend between thirty minutes and two hours per day on Facebook (Kalpidou, Costin, & Morris, 2011). It is no surprise that social psychologists have flocked to this exciting new arena of social behavior to discover how human social interaction plays out in this ecological niche of cyberspace (Wilson, Gosling, & Graham, 2012).

Research to date suggests that Facebook use is associated with mostly positive effects such as higher life satisfaction and social integration (Kalpidou et al., 2011; McAndrew & Jeong, 2012; Morris, Reese, Beck, & Mattis, 2009; Seder & Oishi, 2009). However, there is evidence that time on Facebook is positively correlated with more frequent episodes of jealousy-related feelings and behaviors, especially among women (Elphinston & Noller, 2011; Morris et al., 2009; Muise et al., 2009; Utz & Beukeboom, 2011). In one recent episode, a woman actually stabbed her boyfriend simply because he received a Facebook friend request from another woman! (Timesleader.com. (July 23, 2012). Overall, research indicates that men and women do not differ in the frequency or magnitude of episodes of experienced jealousy, but different factors serve as the triggers for jealousy for men than for women (Buss, 2012). If previous Facebook research is to be believed, Facebook seems to be more often pulling the triggers relevant to female jealousy. The inherent ambiguity of many Facebook comments, photos, and other activities offers ample opportunity for flirting (or at least perceptions of flirting), creating new avenues for eliciting jealousy, intentional and otherwise. It is the goal of this study to add to what we already know about the relationship between Facebook use and jealousy, with an emphasis on differences between males and females in this regard.

2. Method

2.1. Participants

Forty heterosexual undergraduate students at a small Midwestern American liberal arts college (24 Females, 16 Males; age range 18–23) who were currently in a romantic relationship were recruited from undergraduate psychology courses. Participants received course credit for participation in the study.

2.2. Materials

The Facebook Jealousy Scale (Muise et al., 2009) was used in this study. The scale consisted of 27 items on a 7-point Likert scale (1, very unlikely to 7, very likely) assessing how likely an event was to cause feelings of jealousy in the participant or how often the participant engaged in a Facebook activity. Sample items included "How likely are you to become jealous after your partner has added an unknown member of the opposite sex?" and "How likely

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are you to monitor your partner's activities on Facebook?" The Cronbach α that we obtained for this scale was 0.91 for ratings of one's own jealousy and 0.96 for ratings of partner jealousy. In addition to the Facebook Jealousy Scale, participants reported their gender, confirmed that they had a Facebook page, and estimated the number of times per day that they logged onto Facebook as well as the total amount of time per day spent on Facebook activities.

2.3. Procedure

Participants who qualified for the study volunteered during their psychology class period by providing their name and times when they were available. Participants were then contacted by a male experimenter who met them in small groups at a laboratory at an appointed time. Participants filled out the questionnaire twice. The first time they were asked to answer the questions for themselves by reporting their own feelings. The second time, they filled out an identical questionnaire, but were instructed to answer the questionnaire *as they thought their romantic partners would respond*. (Recall that all participants were currently involved in a heterosexual romantic relationship). When filling out the first questionnaire, participants also reported how many times per day they logged onto Facebook and how much time they spent on Facebook during an average day. After the two questionnaires were completed, participants were given a receipt that verified their participation in the study.

3. Results

3.1. Sex differences in Facebook jealousy

First, we wished to examine actual differences between males and females in Facebook-related jealousy. This could be accomplished by comparing the males' and females' responses to the questionnaire that assessed each participant's own personal experiences of jealousy. However, there were 27 items on the questionnaire, which would require a large number of exploratory *t* tests. Therefore, the first step in our data analysis was to factor analyze the 27 items in an attempt to reduce the number of "dependent" variables. Using SPSS software, a principal components factor analysis using varimax rotation was conducted on 27 items, with eight factors being extracted. Only items with a factor loading exceeding .50 were included in a factor, and all questionnaire items loaded on one of the factors. The list of variables loading on each factor and their corresponding values are presented in Table 1. The extracted factors were labeled as follows:

(1) "Mate Guarding" (5 items): Items that reflect both attempts to monitor the Facebook activity of one's partner and experiences of suspicion and worry.
(2) "Distressing Partner Activities" (4 items): Items that describe the behaviors of one's partner that lead to jealousy.
(3) "Jealous Feelings" (4 items): Items that are associated with feelings of jealousy.
(4) "Relationship Confidence" (3 items): Items related to the confidence felt in the romantic relationship with one's partner.
(5) "Fear of Rivals" (3 items): Items that reflect a fear of same-sex rivals.
(6) "Fear of Poachers" (2 items): Two items reflecting the belief that another person is actively pursuing one's partner.
(7) "Spying" (2 items): Two items demonstrating active spying on one's partner.

Table 1
Factor Loadings of Variables that Describe One's Own Activities & Feelings of Jealousy.

Factor name Variables	Factor Loading
Mate Guarding	
Questioning partner about his/her relationship status	.591
Suspicious over private message partner sends	.722
Questioning partner about his/her Facebook activities	.769
Worrying that Partner is reconnecting with past partners	.780
Adding partner's friends to keep tabs on him or her	.620
Distressing partner activities	
Partner receives virtual "gift" from person of opposite sex	.754
Picture posted of partner with member of opposite sex	.786
Partner limits your access to his/her profile	.610
Pictures posted of partner with ex-boyfriend/girlfriend	.689
Jealous feelings	
Partner posts a message on wall on opposite sex	.659
Looking at partner's Facebook page with suspicion	.526
Using Facebook to evoke jealousy in partner	.823
Experience Facebook related Jealousy	.648
Relationship confidence	
Partner doesn't post accurate relationship status	.608
Partner posts sexually provocative pictures	.647
Attempting to gain access to your partners Facebook page	.742
Fear of rivals	
Partner adds unknown member of opposite sex as friend	.797
Partner receives wall message from person of opposite sex	.567
Partner posts pictures with members of opposite sex	.812
Fear of poachers	
Partner adds picture of previous boyfriend/girlfriend	.598
Someone else on Facebook is attracted to your partner	.748
Spying	
Checking partner's Facebook regularly	.786
Monitor partner's activities on Facebook	.859
Partner leaving	
Partner gets romantically involved with someone else	.685
Partner is secretly developing an intimate relationship	.890
Partner is using Facebook to initiate relationships	.563

(8) "Partner Leaving" (3 items): Items revealing a fear that one's partner plans to end the relationship.

Eight new variables were computed by calculating a mean of all of the variables loading on each of the eight factors, with a higher score on each variable always indicating more jealousy. These eight combined variables, plus the number of hours spent on Facebook and number of times logging into Facebook per day, were analyzed via independent sample *t* tests. We report test results as significant at *p*. < .05, but acknowledge that due to the exploratory nature of these tests, a Bonferroni corrected critical value of *p*. < .005 offers a more conservative standard for establishing significance. The means, standard deviations, and *t* test results are displayed in Table 2. Females experienced more jealousy than males on six out of the eight factors that measured jealousy. Females felt more jealousy over distressing partner activities, scored higher on the composite "feelings of jealousy" variable, felt less confidence in the relationship, feared same-sex rivals (*p*. < .066) and poachers more, and engaged in more spying on their partners. There were no significant differences in the tendency to mate guard or to become jealous over a partner leaving, and there were no significant differences in either measure of the time spent on Facebook.

In a further attempt at data reduction, a factor analysis was also conducted on the 27 items in the questionnaire measuring each participant's beliefs about how his/her partner would respond to the questionnaire items. Unfortunately, no coherent factor structure was identified in this analysis, precluding the combination of these items into a smaller set of variables. This left us in the

Table 2
Means, standard deviations, and *t*-test results for self-ratings of jealousy.

Variable/questionnaire item	Male vs. female mean (SD)	*t* Value	df	*p.<*
Mate Guarding	2.00 (0.91) vs. 2.52 (1.27)	1.40	38	.169
Distressing partner activities	3.39 (1.61) vs. 5.10 (1.03)	3.75	23.27[a]	.001
Jealous feelings	2.20 (0.93) vs. 3.36 (1.41)	2.90	38	.006
Relationship confidence	2.25 (0.83) vs. 3.64 (1.63)	3.55	36.04[a]	.001
Fear of rivals	2.21 (1.25) vs. 3.03 (1.40)	1.89	38	.066
Fear of poachers	2.19 (1.29) vs. 4.08 (1.43)	4.26	38	.0001
Spying	2.31 (1.46) vs. 4.52 (1.93)	3.89	38	.0001
Partner leaving	2.28 (1.15) vs. 1.85 (0.88)	1.32	38	.195
Times logged in per day	3.12 (1.15) vs. 3.42 (1.14)	0.79	38	.434
Hours on FB per day	1.63 (0.62) vs. 1.83 (0.70)	0.96	38	.342

[a] A Levene's Test for Equality of Variances indicate that equal variances could not be assumed for variables marked with an asterisk, resulting in a recalculated variable for degrees of freedom. All variables are scored on a seven point scale.

position of having to analyze each of the 27 items separately. The main question of interest to us regarding the second questionnaire was whether participants perceived themselves as being more or less likely than their partners to become jealous over Facebook activity, and whether these perceptions accurately reflected the sex differences in jealousy uncovered by the previous analysis which showed that females experience more jealousy than males about Facebook activity. To find out, we conducted a paired-sample *t* test on each of the 27 items separately for male participants and female participants. In each of these tests, we examined whether or not participants expected different levels of jealousy between themselves and their partners. On the 27 items, females expected themselves to behave more jealously than their males partners on only one item, which was the likelihood of monitoring their partner's activities on Facebook, *t*(23) = 2.66, *p* < .01; Means (SD) = 4.67 (1.99) vs. 3.67(1.83), and there was one item (How jealous would you feel if your partner posted pictures of himself/herself that are sexually provocative?") on which females actually expected males to be more jealous than females would be,

t(23) = 2.33, *p* < .03; Means(SD) = 5.29 (1.88) vs. 4.29(1.90). Thus, in general, females did not perceive themselves as being more "jealous" over Facebook than their male partners. Males, on the other hand, perceived that females would score higher in jealousy on ALL 27 items! The difference in this pattern of results is highly significant, $\chi^2(1) = 24.14$, *p.* < .0001. The results of the *t* test analyses for the males are presented in Table 3. Thus, our males correctly understood that females become more jealousy over Facebook activities than do males, but the females apparently did not understand this.

4. Discussion

This study supported the hypotheses that females are more prone to Facebook-evoked jealousy than males, and perhaps surprisingly, found that males are more sensitive to this difference than are females. This suggests that misunderstandings between romantic partners over Facebook use will more likely be due to

Table 3
Paired sample *t*-test results for male responses to jealousy questionnaire, responses of self versus hypothetical responses for one's girlfriend[*].

Questionnaire item	Mean differences (SD) (Self minus partner)	*t* Value	*p.<*
Partner adds unknown opp. Sex friend	−2.00 (2.13)	3.76	.002
Partner does not post accurate relationship status	−2.19 (2.29)	3.83	.002
Feel threatened when partner adds previous partner as friend	−2.25 (2.67)	3.37	.004
Monitor partner's Facebook activity	−1.19 (1.56)	3.05	.008
Jealous over partner posting message on page of opposite sex friend	−1.86 (2.58)	2.91	.011
Question partner about Facebook friends	−1.69 (2.39)	2.83	.013
Uneasy over partner receiving virtual gift from opposite sex friend	−1.19 (2.29)	2.08	.055
Partner posts picture with arm around person of opposite sex	−1.63 (2.19)	2.97	.009
Partner limits access to his/her profile	−2.25 (1.95)	4.62	.0001
Partner posts picture with previous boyfriend/girlfriend	−1.94 (2.02)	3.85	.002
Suspicions about partner's private messages	−1.69 (1.70)	3.97	.001
Worry that partner will become romantically involved with someone on Facebook	−1.59 (2.10)	2.86	.012
Jealous over wall message received by partner	−1.94 (2.26)	3.42	.004
Jealous over photos of partner with opposite sex others	−1.38 (2.28)	2.42	.029
Suspect partner is developing intimate Facebook relationship	−2.06 (2.41)	3.43	.004
Worry that partner is using Facebook to initiate relationships	−1.63 (1.89)	3.43	.004
Partner posts sexually provocative photos	−1.81 (1.91)	3.81	.002
Concerned that someone else is attracted to partner	−2.43 (2.66)	3.67	.002
Look at partner's Facebook page when suspicious	−2.44 (2.10)	4.65	.0001
Fight with partner over Facebook	−2.06 (1.98)	4.16	.001
Check partner's Facebook on regular basis	−1.81 (1.83)	3.95	.001
Worry that partner uses Facebook to re-connect with past partners	−2.13 (1.96)	4.33	.001
Question partner about Facebook activity	−2.69 (2.63)	4.09	.001
Add partner's friends to keep tabs on partner	−2.44 (2.58)	3.78	.002
Use Facebook to evoke jealousy	−2.19 (2.17)	4.04	.001
Attempt access to partner's account	−1.88 (2.09)	3.58	.003
Experience jealousy related to Facebook	−1.88 (3.12)	2.41	.029

Note: All variables are scored on a seven point scale; all df = 15; mean differences represent the average difference between the mean ratings of the self versus girlfriend's hypothetical response.

females misunderstanding their partners' reactions to Facebook activity than the other way around. This study certainly has limitations. The students are all from the same institution, the sample size is small, and the statistical comparisons are many. However, when statistical significance is obtained in spite of small sample sizes, it indicates a fairly robust effect. Our findings suggest interesting new directions for future research on sex differences in jealousy related to Facebook activity.

References

Anderson, B., Fagan, P., Woodnutt, T., & Chamorro-Premuzic, T. (2012). Facebook psychology: Popular questions answered by research. *Psychology of Popular Media Culture, 1*, 23–37.

Buss D. M. (2012). Evolutionary psychology: The new science of the mind, 4th ed., Boston, Allyn & Bacon.

Elphinston, R. A., & Noller, P. (2011). Time to face it! Facebook intrusion and the implications for romantic jealousy and relationship satisfaction. *CyberPsychology, Behavior, and Social Networking, 14*, 631–635.

Facebook.com. (2011). <http://www.facebook.com/press/info.php?statistics> accessed 4.12.11.

Kalpidou, M., Costin, D., & Morris, J. (2011). The relationship between facebook and the well being of undergraduate college students. *Cyberpsychology, Behavior, and Social Networking, 14*, 183–189.

McAndrew, F. T., & Jeong, H. S. (2012). Who does what on Facebook? Age, sex and relationship status as predictors of Facebook use. *Computers in Human Behavior, 28*, 2359–2365.

Morris, J., Reese, J., Beck, R., & Mattis, C. (2009). Facebook usage as a measure of retention at a private 4-year institution. *Journal of College Student Retention: Research, Theory, and Practice, 11*, 311–322.

Muise, A., Christofides, E., & Desmarais, S. (2009). More information than you ever wanted: Does Facebook bring out the green-eyed monster of jealousy? *CyberPsychology & Behavior, 12*, 441–444.

Seder, J. P., & Oishi, S. (2009). Ethnic/racial homogeneity in college students' Facebook friendship networks and subjective well-being. *Journal of Research in Personality, 43*, 438–443.

Sheldon, K. M., Abad, N., & Hinsch, C. (2011). A two-process view of facebook use and relatedness need-satisfaction: Disconnection drives use, and connection rewards it. *Psychology of Popular Media Culture, 1*, 2–15.

Timesleader.com. (July 23, 2012). Man stabbed after receiving Facebook friend request. <http://www.timesleader.com/stories/Police-Man-stabbed-after-receiving-Facebook-friend-request-,180035> accessed 24.07.12.

Utz, S., & Beukeboom, C. J. (2011). The role of social network sites in romantic relationships: Effects on jealousy and relationship happiness. *Journal of Computer-Mediated Communication, 16*, 511–527.

Wilson, R. E., Gosling, S. D., & Graham, L. T. (2012). A review of Facebook research in the social sciences. *Perspectives on Psychological Science, 7*, 203–220.