

The Influence of Social Networking Photos on Social Norms and Sexual Health Behaviors

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Abstract

Two studies tested whether online social networking technologies influence health behavioral social norms, and in turn, personal health behavioral intentions. In Study 1, experimental participants browsed peers' Facebook photos on a college network with a low prevalence of sexually suggestive content. Participants estimated the percentage of their peers who have sex without condoms, and rated their own future intentions to use condoms. Experimental participants, compared to controls who did not view photos, estimated that a larger percentage of their peers use condoms, and indicated a greater intention to use condoms themselves in the future. In Study 2, participants were randomly assigned to view sexually suggestive or nonsexually suggestive Facebook photos, and responded to sexual risk behavioral questions. Compared to participants viewing nonsuggestive photos, those who viewed sexually suggestive Facebook photos estimated that a larger percentage of their peers have unprotected sexual intercourse and sex with strangers and were more likely to report that they themselves would engage in these behaviors. Thus, online social networks can influence perceptions of the peer prevalence of sexual risk behaviors, and can influence users' own intentions with regard to such behaviors. These studies suggest the potential power of social networks to affect health behaviors by altering perceptions of peer norms.

Introduction

AS YOUNG PEOPLE increasingly use online social networking technologies, such as Facebook, to learn about their peers attitudes and behaviors, could these virtual networks influence health behaviors? The present studies were designed to test the hypothesis that photos posted on social networking profiles may influence perceived social norms and thereby affect sexual health behavioral intentions.

Risky sexual health behaviors are highly prevalent among American college students. Despite the fact that using condoms can reduce the risk of contracting a sexually transmitted infection by 70–100 percent,^{1,2} only about 40 percent of sexually active college students report using condoms regularly.^{3–5} According to one study, 36 percent of college students do not use condoms during initial sexual experiences with a new partner, and more than 50 percent failed to use condoms during their most recent sexual involvements.⁶ These alarmingly high rates of unprotected sex contribute to unplanned pregnancies and to the current HIV epidemic.^{7,8} Moreover, casual sex is increasingly common among college students, with as many as 47 percent of young men and 33

percent of young women reporting having had intercourse in the context of a casual "hook-up,"⁹ a risk factor for negative health consequences.^{10,11} Understanding contributors to sexual risk behaviors is critical to redressing these social problems.

The social normative theory is one approach that might help explain (and could be used to potentially intervene in) people's sexual risk behaviors. Psychological theory suggests that people's behaviors—including sexual health behaviors—are strongly influenced by estimates of whether peers are engaging in the same behaviors. For example, a college student who believes unprotected sex is prevalent and acceptable among her peers (i.e., unprotected sex is an accepted social norm) might be more likely to have unprotected sex herself. In particular, according to the theories of reasoned action^{12,13} and planned behavior,¹⁴ subjective norms are a key determinant of people's behavioral intentions, which in turn strongly influence actual behaviors. That is, holding constant the consequences of engaging in a behavior, people's intentions to engage in the behavior are often influenced by the extent to which they perceive other people, such as peers, as engaging in the same behavior, or as endorsing that type of behavior.

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According to research, perceived social norms (i.e., subjective norms) do appear to affect sexual behavioral intentions.¹⁵ Two large meta-analyses indicated a correlation of approximately 0.40 between subjective norms and personal intentions to use condoms.^{16,17} For example, in one study, male college students who were told that sexual risk behaviors were rare among their peers were more likely to report a future intention to use condoms, compared to control participants.¹⁸ On the other hand, if people think that much of their peer group engages in sexual risk behaviors, they are more likely to engage in such behaviors themselves. In a survey of 725 college students, overestimating the peer prevalence of sexual behaviors was associated with a greater sexual activity among the respondents themselves.¹⁹

Thus, whereas perceiving a high peer prevalence of sexual risk behaviors may increase college students' own participation in such behaviors, highlighting low normative rates of sexual behavior may decrease people's likelihood of engaging in these behaviors.²⁰ Because of the growing popularity and normative influence of social networking technology,^{21,22} we sought to test the effects of Facebook photos on perceptions of peer norms and sexual behavior intentions. Based on social normative theory, we hypothesized that because user-uploaded photos on Facebook convey information about students' sexual norms,²³ photos that suggest sexual restraint among peers would decrease students' intentions to engage in sexual risk behaviors (Study 1), whereas photos that are sexually suggestive would increase students' intentions to engage in sexual risk behaviors, relative to photos suggesting restraint (Study 2). To test these hypotheses, we ran two studies assessing the influence of Facebook photos on college-age individuals' perceptions of peer sexual behaviors and their own sexual behavior intentions.

Study 1

Method

To test our first hypothesis, we sought a college Facebook network with a low proportion of photos suggesting sexual risk behaviors. Two research assistants, blind to experimental hypotheses, randomly sampled 50 student photos (including approximately equivalent numbers of men and women in the pictures) from each of the three Facebook university networks: the University of California at Los Angeles (UCLA), the University of California at Berkeley, and the Stanford University. The coders worked together to tally the number of photos, out of the 50, that featured sexual suggestion (e.g., kissing, flirting with the camera, wearing revealing clothing, groping of other individuals in the photo). Compared to the UCLA ($M=8.2$) and Berkeley ($M=7.4$) networks, a low

number of photos from student profiles at Stanford included sexually suggestive content ($M=2.7$). We therefore focused our study on the effects of Stanford's Facebook network photos on students' perceptions of peer sexual behaviors, as well as intentions for their own sexual behaviors.

Forty-nine Stanford undergraduates (male and female; 18–23 years old; mean age=19.2), as part of a requirement for study participation to receive course credit, were randomly assigned to an experimental ($n=24$) or a control ($n=25$) group. Participants were run individually in a laboratory room, and were seated at an experimenter-provided computer. Participants in the experimental group were asked to log in to their Facebook accounts and view 15 photos of their Stanford peers (including both male and female peers). After examining these photos, the participants completed an offline (paper) questionnaire that began with filler questions about general health behaviors; embedded among these questions was our variable of interest, asking participants to estimate the percentage of their peers who have sex without condoms. Participants then reported their own likelihood (on a 7-point Likert scale; 1=extremely unlikely, 7=extremely likely) of using a condom when having sex with a person of unknown HIV status, alongside filler questions asking them about their general health and social networking behaviors. Those in the control group answered the same questionnaire without first looking at Facebook photos.

Results and discussion

Consistent with our hypothesis, students who first looked at Facebook photos, compared to control participants, estimated that a lower percentage of their peers participated in unprotected intercourse (see Table 1). Similarly, students who looked at Facebook photos reported a greater intention, compared to the control group, to use condoms when having sex with a person of unknown HIV status (see Table 1). It appears from this study that when people perceive their peers as being cautious about sexual risk behaviors, they are more likely themselves to intend to be cautious in their sexual behaviors. These results are especially striking and speak to the power of subjective norms when considering the plausibility of an opposite pattern of results: If people were not concerned about behaving in line with peer norms, and instead were looking out only for their own safety, then perhaps they would exercise less caution (i.e., be less likely to use condoms) when they perceived potential sex partners (i.e., peers) as taking fewer risks, since these peers might be less likely to have infections themselves (compared to a peer group with a greater risk behavior).

Note that, due to the small sample size in this study, we set alpha at a higher level than is conventional (0.10). To test

TABLE 1. PERCEIVED PERCENTAGE OF PEERS HAVING UNPROTECTED SEX AND PARTICIPANTS' INTENTIONS TO USE CONDOMS IN THE FUTURE (STUDY 1)

	Facebook photo viewers M (SD)	Controls M (SD)	Cohen's <i>d</i>	95% CI
Perceived peer prevalence of unprotected sex [†]	13.6% (11.0)	25.8% (25.1)	0.63	(-0.27, 24)
Participants' intentions to use condoms in the future*	4.94 (0.24)	4.48 (0.87)	0.78	(-0.88, -0.05)

*Difference is significant at $p < 0.05$, two-tailed *t*-test.

†Difference is significant at $p < 0.06$, two-tailed *t*-test.

the robustness of our effects, we therefore utilized a larger sample in a second study. To rule out possible confounds in Study 1 (in which only experimental participants browsed Facebook), we also included Facebook photos in both conditions in the second study. Specifically, in Study 2, we included a condition that featured Facebook photos with a high level of sexual suggestion and a condition featuring Facebook photos with a low level of sexual suggestion, to isolate the effect of peer sexual norms conveyed through Facebook photos on individuals' sexual risk behavior intentions.

Study 2

Method

Using the Amazon's Mechanical Turk online interface,²⁴ 154 college-age (82 women; 18–25 years old; mean age = 19.6) individuals completed a survey in exchange for payment. Participants were randomly assigned to one of the two versions of the survey, one of which featured sexually suggestive photos (e.g., kissing, flirting with the camera, wearing revealing clothing, groping of other individuals in the photo) of college-age individuals ($n=79$), and the other of which featured nonsexually suggestive photos of college-age individuals ($n=75$). These photos included an equal number of men and women, and were featured on the first page of the survey, which asked participants about their social media usage. On the next part of the survey, participants estimated the peer prevalence of sexual risk behaviors, reported their own likelihood of engaging in sexual risk behaviors, and estimated their political attitudes and other nonsexual health behaviors (filler items). Specifically, in terms of sexual risk behaviors, participants were asked to estimate the percentage of their peers who frequently engage in unprotected sexual intercourse as well as the percentage of their peers who have had sex with a stranger. Participants were then asked to rate the likelihood that they themselves would engage in these behaviors (7-point scale; 1 = extremely unlikely, 7 = extremely likely).

Results and discussion

Participants who viewed sexually suggestive Facebook photos of peer-aged individuals, compared to control participants who viewed nonsuggestive Facebook photos, estimated that a higher percentage of their peers engage in unprotected sexual intercourse and have sex with strangers (see Table 2). This experimental group also rated themselves as being significantly more likely to engage in unprotected intercourse themselves, and marginally more likely to have sex with strangers (see Table 2). Filler items are not reported

here as these were included only to mask the purposes of the study and do not relate to our hypotheses.

The results from Study 2 thus strengthen our interpretation of Study 1: It appears that even a brief exposure to Facebook photos can convey information about peer norms of sexual behavior. These peer norms, in turn, may influence people's own sexual behavior intentions, owing to the importance of subjective norms in determining human behavior in general.¹³

General Discussion

These experiments suggest that photos on social networking pages affect people's sexual health behavioral perceptions and intentions. Regardless of whether Facebook photos tend to accurately represent real campus norms, or are merely reflections of preferred self-images that users want to convey to the world, these results suggest that using Facebook and other online social networks may influence college students' perceptions of sexual health behavior norms among their peers, which in turn may influence their own sexual health behaviors. At university networks where Facebook photos show little sexually suggestive material, students' browsing of their school's online social network may reduce sexual risk behaviors by attenuating perceptions of peer risk behavior. On the other hand, online social networking technologies might have detrimental effects on health behaviors in college settings where risk behavior is more commonly depicted in online photos.

Future research might examine how wall posts, comments, and other forms of communication on Facebook and other social networks can affect perceived social norms and behavioral intentions, and whether the effects in this manuscript can be replicated in the domain of alcohol use, where students also sometimes overestimate the peer prevalence of risk behavior.²⁵ It will also be worthwhile to investigate how peer behavioral norms conveyed through Facebook and other social media affect individuals' expectations for, and satisfaction with, their own lives. For example, recent findings suggest that college students overestimate the proportion of their peers who go out socializing on the weekends, possibly leading them to feel worse about their own social lives.²⁶ It is unknown whether Facebook use might exaggerate or attenuate these errors in social perception.

Limitations

The present results are limited by the undergraduate-age participant samples; it is unknown whether the results would generalize to other age groups. Further, the present studies are limited by the measurement of behavioral intentions

TABLE 2. PERCEIVED PEER PREVALENCE OF SEXUAL BEHAVIORS AND PARTICIPANTS' BEHAVIORAL INTENTIONS (STUDY 2)

	High sexual suggestion photo viewers M (SD)	Low sexual suggestion photo viewers M (SD)	Cohen's <i>d</i>	95% CI
Perceived peer prevalence of unprotected sex**	36.7% (32.4)	25.2% (22.7)	0.41	(-20.5, -2.5)
Peer peer prevalence of sex with a stranger*	36.6% (32.8)	26.0% (26.0)	0.36	(-20.0, -1.1)
Personal likelihood of unprotected sex*	4.1 (2.0)	3.4 (2.0)	0.35	(-1.4, -0.1)
Personal likelihood of sex with a stranger†	3.3 (2.1)	2.7 (1.8)	0.31	(-1.2, 0.03)

**Difference is significant at $p=0.01$, two-tailed t -test.

*Difference is significant at $p<0.05$, two-tailed t -test.

†Difference is significant at $p<0.06$, two-tailed t -test.

rather than actual behavior. However, research has demonstrated that behavioral intentions are generally an accurate and a strong predictor of actual behavior,^{14,27} and condom use in particular correlates with intentions to use condoms at approximately 0.45, according to the meta-analysis by Albarracin et al.¹⁶ Future research can extend the present studies to look at actual behavior and not just behavioral intentions. In addition, it is possible that state arousal may have contributed to the effects found in Study 2. While the pictures used in the sexually suggestive condition were not explicit, participants in this condition may nonetheless have been more sexually aroused, and this could have influenced their sexual intentions. This interpretation is consistent with recent research suggesting wide-ranging effects of state arousal on sexual decision making.²⁸ Future research can help to better disentangle the effect of peer norm perception from state arousal. Finally, our studies looked only at the effects of normative information that is presented in photos; future research should explore the relative contributions of normative information presented in other forms of Facebook communication, such as posts, chats, messages, and group affiliations.

Conclusion

These studies serve to illustrate the power of online social networks—one of the most widely used methods of communication and self-presentation today—to influence perceptions of risk behavior among peers. Perceptions of peer norms, in turn, can influence people's own risk behaviors. Findings suggest that health interventions using online social networks will be more effective if peer attitudes and behaviors are integrated in the social network intervention.

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