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What “likes” have got to do with it: Exposure to peers’ alcohol-related posts and perceptions of injunctive drinking norms

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Abstract

Objective: Examine 1) whether observed social reinforcements (i.e., “likes”) received by peers’ alcohol-related social media posts are related to first-year college students’ perceptions of peer approval for risky drinking behaviors; and 2) whether associations are moderated by students’ alcohol use status.

Participants: First-year university students (N = 296) completed an online survey in September, 2014.

Method: Participants reported their own alcohol use, friends’ alcohol use, perceptions of the typical student’s approval for risky drinking, and ranked 10 types of social media posts in terms of the relative numbers of “likes” received when posted by peers.

Results: Observed social reinforcement (i.e., “likes”) for peers’ alcohol-related posts predicted perceptions of peer approval for risky drinking behaviors among non-drinking students, but not drinking students.

Conclusions: For first-year college students who have not yet initiated drinking, observing peers’ alcohol-related posts to receive abundant “likes” may increase perceptions of peer approval for risky drinking.

Heavy drinking on college campuses remains a serious public health problem responsible for more than 500,000 injuries, 600,000 physical assaults, 80,000 sexual assaults, and 2,000 deaths annually.^{1–3} Because perceptions of peers’ drinking and positive alcohol-related attitudes are among the strongest predictors of college students’ future drinking^{4,5}, but students tend to overestimate these norms^{6–8}, interventions designed to correct misperceived drinking norms have become popular strategies for reducing alcohol-related risks. However, these interventions have led to only modest reductions in students’ drinking^{6,9–11} and research suggests that popular *social networking sites* (SNSs) may be to blame. That is, heavy drinking students commonly use SNSs to showcase their drinking^{12,13}, and recent findings suggest that alcohol-related posts inflate observers’ perceptions of how much and how often classmates drink, undermining intervention efforts.^{12,14–25} For example, one recent experimental study demonstrated that students perceive inflated descriptive drinking

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norms for typical students at the same university¹⁸ after viewing a profile of a fictitious student containing alcohol-related content relative to an alcohol-free version of the same profile. Further, a recent longitudinal study found that self-reported “real life” exposure to alcohol-related content posted by peers on SNSs during the initial 6 weeks of college predicted perceptions of descriptive drinking norms and beliefs about the role of alcohol in the college experience. These alcohol cognitions, in turn, predicted students’ drinking 6 months later.²⁴

Despite research identifying injunctive drinking norms (i.e., perceptions of peer approval for alcohol use), to be uniquely predictive of college students’ future drinking^{4,6} and negative consequences^{26,27} potential relationships between these norms and SNS alcohol exposure have not yet received empirical attention²⁵. Meanwhile, several SNSs share behavioral reinforcement features that seem likely to inform injunctive norms. Posts on both Facebook and Instagram, two immensely popular SNSs among college students,^{28–30} can be socially reinforced, or “liked” by other users. Both SNSs visibly display the number of “likes” garnered by a post immediately below the content. Thus, for college students, whether the “likes” attached to peers’ alcohol related SNS posts inform perceptions of classmates’ approval for drinking behaviors remains an important question. An additional gap in the literature pertains to the characteristics of students whose normative perceptions are most likely to be influenced by what they see on SNS. That is, although injunctive drinking norms are established predictors of future drinking among both alcohol experienced and inexperienced college students, it remains to be seen whether there are differences in the degree to which SNS observations relate to the perceived norms of drinking and non-drinking students.

The current study addresses these unanswered questions by examining 1) whether “likes” variably attached to peers’ alcohol related SNS posts are associated with perceptions of peer approval for risky drinking; and, 2) whether the “likes” garnered by peers’ alcohol-related posts are differentially associated with normative perceptions among students who are already drinking and those who have not yet initiated alcohol use. Consistent with previous social norms research suggesting that peers’ observable drinking behaviors may be more distinctive and highly salient for non-drinking students, relative to those already drinking,^{27,31} we expected that the relationship between the “likes” garnered by peers’ alcohol-related posts and perceptions of risky drinking approval would be stronger among non-drinking students. To test this hypothesis, students’ alcohol use status (drinker versus non-drinker) is examined as a moderator of the relationship between relative “likes” received by others’ alcohol-related posts and perceptions of approval for risky drinking.

Method

Participants & Procedure

Two-hundred and ninety six first-year students at a private, mid-sized university on the West coast of the United States completed a confidential online survey 25–50 days into their first semester of college. These participants came from control arms of a larger study intervening on parent-child alcohol communication during the transition to college. All of the study’s procedures and measures were approved by the university’s Institutional Review Board.

Participants consented prior to beginning the confidential survey and were compensated \$20 following its completion. The sample had a mean age of 18.10 years ($SD = .43$) and was 62% female. Fifty-four percent were Caucasian, 22% were Hispanic, 11% were Asian, 9% were African American, and 4% were multi-racial or other. Aside from age (all participants were in their first year), the sample's demographics closely mirrored those of the University's entire student body (57% Female, 44% Caucasian, 22% Hispanic, 11% Asian, 6% African American, and 17% multi-racial or other).

Measures

Alcohol Use Status.

Participants were prompted to describe their alcohol use during the past year using one of the following response options: "I have never tried alcohol," "I am an abstainer (I do not drink at all, but have tried before)," "I am light drinker," "...moderate drinker," "...heavy drinker," or "...problem drinker." The 36% ($n=108$) of participants who answered this question with "I have never tried alcohol" or "I am an abstainer" were coded as non-drinkers.

Close College Friends' Alcohol Use.

A previously published³² 3-item scale asked participants to indicate how many of their close college friends drink alcohol, get drunk on a regular basis, and drink primarily to get drunk using response options "None," "Some," "Half," "Most," or "Nearly All."³² Internal consistency was high ($\alpha = .85$) and consistent with scoring procedures outlined by the original authors, responses were summed to create composite scores ranging from 0 (*No Friend Alcohol Use*) to 12 (*High Friend Alcohol Use*).

Personal Approval and Injunctive Norms for Drinking.

Parallel sets of 5 items from the expanded Injunctive Norms Questionnaire^{4,33} assessed participants' personal approval and perceptions of the approval of a typical same-sex freshman student at their specific university for five risky drinking behaviors: "playing drinking games," "drinking shots," "drinking to get drunk," "drinking alcohol every weekend," and "drinking under age 21." Response options ranged from 1 (*strongly disapprove*) to 7 (*strongly approve*). Internal consistency was high in both sets of items ($\alpha = .91$ for own approval; $\alpha = .89$ for perceived typical student approval) and responses were averaged to create composite scores.

SNS Use Frequency.

Previously published²⁴ items asked participants to indicate the frequency with which they "check" Facebook and Instagram using response options: "Do not have an account," "Once a month or less," "2–3 times per month," "1–3 times per week," "4–6 times per week," "1–3 times per day," "4–6 times per day," "7 or more times per day."

Observed “Likes” for Others’ Alcohol-Related Posts.

Because the raw counts of “likes” received by a post on Facebook and Instagram are highly dependent on the network size of the individual posting the content, counts of “likes” attached to alcohol-related posts do not provide meaningful measures of peer reinforcement. More meaningful is how the average number of “likes” received by alcohol-related posts in ones’ newsfeed compares to the average number of “likes” received by other types of frequently encountered posts. To create such a measure, we first conducted a pilot study with 57 undergraduate social media users (all between 18 and 20 years of age) taking part in the psychology department’s human subject pool. Pilot participants were asked to describe the 5 most common topics of text and photographic posts they encounter on Facebook and Instagram SNSs. While there was some variability in the types of posts described, 10 distinct types of posts were described by large numbers of students. Participants in the current study were presented lists of these 10 post types in randomized order. Parallel items asked participants to rank the post types in terms of the average numbers of “likes” they receive, relative to one another, in their own 1) Facebook newsfeed and, 2) Instagram newsfeed, from “least likes” (0) to “most likes”(9). Participants were encouraged to check their Facebook and Instagram feeds for reference while ranking the post types. To improve distributions, raw ranks for alcohol-related posts were grouped in pairs and recoded from 0 (least likes) to 4 (most likes). Of interest to the current investigation were the “likes” rank of posts related to, “Alcohol, getting drunk, and being hung over” relative to the other types of posts.

Results

Drinkers significantly exceeded non-drinkers in the proportions having Facebook and Instagram accounts, as well as frequencies of checking Facebook and Instagram (Table 1). Relative to non-drinking students, drinkers also ranked the “likes” received by others’ alcohol-related posts significantly higher on both Facebook and Instagram, reported greater personal approval for risky drinking behaviors, and having college friends with significantly higher levels of alcohol use. Notably, however, perceptions of typical student approval for risky drinking did not statistically differ between drinkers and non-drinkers, $t(295) = 1.52$, $p = .13$.

Having established that the majority of participants in the sample used both SNSs, corresponding Facebook and Instagram specific variables were correlated with each other, and similarly correlated with all other study variables (Table 2), Facebook and Instagram specific variables were combined into composite frequency of use and alcohol-related “likes” ranking variables in order to avoid multi-collinearity in multivariate analyses. Composite measures were computed by summing SNS-specific frequency of use (i.e., Facebook + Instagram) and ranks for alcohol-related “likes” (i.e., rank on Facebook + rank on Instagram). As presented in Table 3, a hierarchical regression model tested whether the relative “likes” received by peers’ alcohol-related posts on the SNSs, and/or the interaction between relative “likes” and alcohol use status would predict perceptions of typical student approval for risky drinking after controlling for one’s sex, frequency of using the SNSs, own approval for risky drinking, and close friends’ drinking behavior. Examination of coefficients indicated that there was no significant main effect for alcohol-related “likes” on

perceptions of typical student approval for underage drinking. However, the coefficients for drinker-status and the interaction term were both significant.

To interpret the interaction, perceptions of typical student approval for underage drinking were plotted as a function of relative “likes” for others’ alcohol related SNS content separately for drinkers and non-drinkers (see Figure 1) and were accompanied by tests of simple slopes.³⁴ Only the line for non-drinkers differed significantly from zero, ($B = .20$, $SE = .06$), $t(289) = 3.04$, $p = .002$) confirming that relative “likes” received by others’ alcohol-related SNS posts positively predicted perceptions of peers’ approval of risky drinking *only* among alcohol inexperienced first year students.

Comment

Among non-drinking students, as social reinforcement (i.e., “likes”) garnered by peers’ alcohol-related SNS posts increased so did their perceptions of peer approval for risky drinking behaviors. This finding suggests that those who lack ample first-hand experience observing alcohol-use among close friends, may rely on SNSs, specifically the “likes” attached to peers’ alcohol-related posts, to estimate classmates’ approval for risky drinking. While both drinkers and non-drinkers perceived similar levels of peer approval for risky drinking, drinkers’ normative perceptions were not related to “likes.” Rather, drinkers’ estimations of approval appeared to be more related to their own approval and alcohol use of their close college friends. Results suggest that while observations in face-to-face drinking contexts are likely to inform the injunctive norms for risky drinking among alcohol experienced students, students in non-drinking social circles may glean normative information about peer approval for risky drinking from the behaviors they see extended network peers’ partake in and socially reinforce on SNSs.

Implications

Given that injunctive drinking norms are potent predictors of future drinking and negative consequences among college students, the relationship between non-drinkers’ observations of “likes” for others’ alcohol-related SNS posts and perceptions of approval for risky drinking may carry important implications for prevention efforts aimed at delaying alcohol initiation among emerging adults. As suggested by the relatively low alcohol use by close friends of non-drinkers, prevention efforts might aim to reinforce or enhance the salience of injunctive drinking norms within non-drinking students’ close peer groups in order to mitigate potential risks associated with “liked” alcohol content of distal peers. Strategic interventionists might also aim to adjust students’ normative perceptions through innovative SMS campaigns aimed to decrease the “likes” attached to students’ alcohol-related content and increase “likes” attached to non-alcohol-related content. Finally, emerging social norms interventions that innovatively integrate with Facebook to more believably and interactively correct normative perceptions³⁵ and/or deliver normative feedback^{35,36} might prove especially effective among alcohol inexperienced students and other groups of students for whom social media observations and normative perceptions are correlated.

Limitations and Directions for Future Research

First, the “likes” ranking assessment was used for the first time in this study. Rather than relying on numeric responses (i.e., actual numbers of “likes”) for the various post-types, which are likely to be dependent on the size of the posting individual’s network, the assessment required participants to rank ten common post types in terms of numbers of “likes” received in their Facebook and Instagram newsfeeds, which provided a straightforward measure of post popularity. However, although instructions recommended that students consult their SNS newsfeeds when ranking the post types, it is unclear whether participants followed this recommendation. Second, this study’s sample consisted of fewer than 300 participants from a single university. Future studies should employ larger cohorts of students from multiple universities. Third, due to the cross-sectional design, directionality of relationships between SNS “likes” and perceptions of injunctive norms for alcohol use could not be assessed. Prospective research which assesses perceived injunctive norms and drinking behaviors at multiple times during students’ first-year, and more objectively assesses “likes” received by peers’ alcohol-related posts, could better elucidate the degree to which “likes” attached to peers’ alcohol-related SNS posts influence perceptions and subsequent risky drinking behavior.

Conclusion

This study directs empirical attention to the “like” mechanism in several popular SNSs. After controlling for first-year students’ own alcohol-related attitudes and close friends’ drinking behaviors, observed “likes” garnered by peers’ alcohol-related Facebook and Instagram posts were associated with perceptions of peer approval for risky drinking behaviors among nondrinking students, but were unrelated to perceptions of approval among alcohol experienced students. These findings are the first to suggest that underage college students who lack ample first-hand experience observing alcohol-use among close friends, may rely on SNSs, specifically the “Likes” attached to peers’ alcohol-related posts, to estimate injunctive drinking norms.

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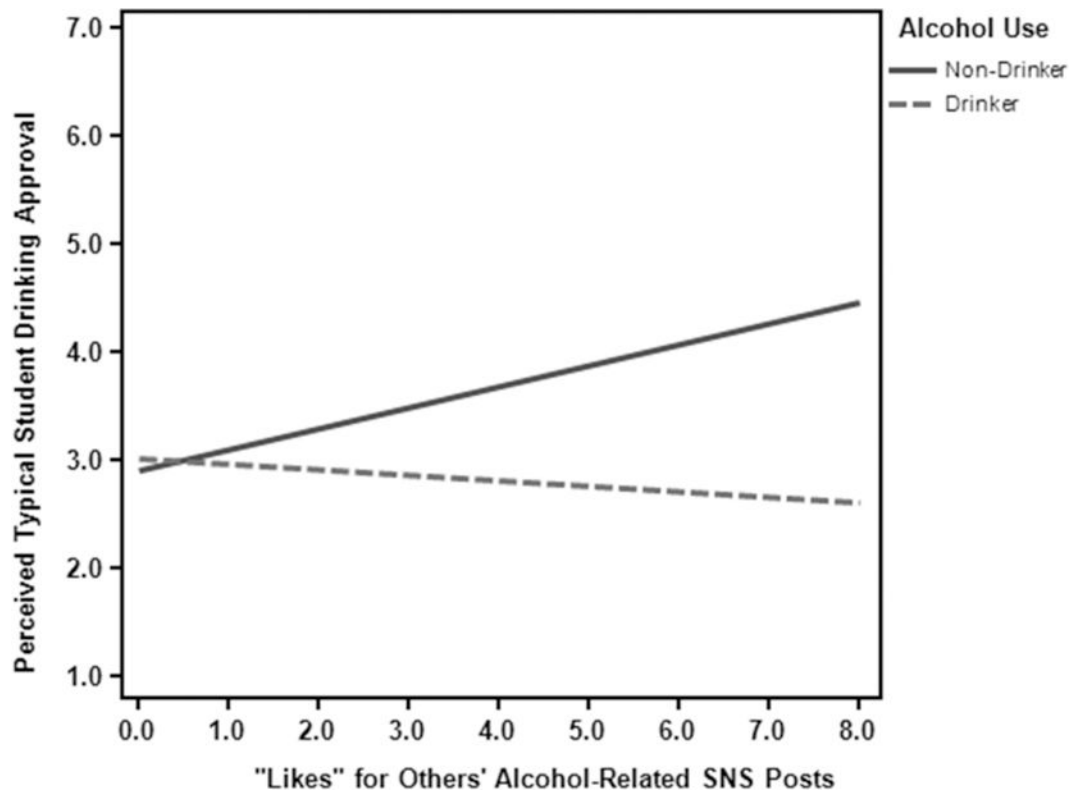


Figure 1. Non-drinkers' and drinkers' perceptions of typical student approval for underage drinking as a function of relative "likes" received by others' alcohol-related SNS posts.

Table 1.

Descriptive Statistics for SNS Use Frequency, “Likes” For Alcohol-Related Posts, and Approval for Underage Drinking by Drinker Status

| | Overall ^a (n=296) | | Non-Drinkers ^b (n=108) | | Drinkers ^b (n=188) | |
|--|------------------------------|-------------|-----------------------------------|-------------|-------------------------------|----------------|
| | FB | IG | FB | IG | FB | IG |
| <i>SNS Use Frequencies % (N)</i> | | | | | | |
| No account | 9.1 (27)** | 21.5 (64) | 14.8 (16)** | 32.4 (35)** | 5.8 (11)* | 15.3(29)* |
| Less than once a day | 26.9 (80)** | 12.4 (37) | 27.8 (30) | 13.8 (15) | 26.5 (50) | 11.6 (22) |
| 1–3 times per day | 31.6 (94)** | 21.9 (65) | 26.9 (29) | 20.4 (22) | 34.4 (65)** | 22.8 (43) |
| 4–6 times per day | 16.8 (50) | 21.9 (65)* | 18.5 (20) | 16.7 (18) | 15.9 (30) | 24.9 (47)*** |
| 7+ times per day | 15.5 (46) | 22.2 (66)** | 12.0 (13) | 16.7 (18) | 17.5 (33)** | 25.4 (48)*** |
| <i>Alcohol-Related “Likes” M(SD) (0=least likes; 4=most likes)</i> | | | | | | |
| | 1.96 (1.03) | 1.84 (1.29) | 1.73 (1.05) | 1.47 (1.31) | 2.10 (.99)*** | 2.04 (1.24)*** |
| | Overall | | Non-Drinkers ^b | | Drinkers ^b | |
| <i>College Friends’ Alcohol Use (0=none use; 12=all use)</i> | | | | | | |
| | 4.98 (3.26) | | 3.17 (2.59)*** | | 6.02 (3.15)*** | |
| <i>Own Approval M(SD) (1=low-7=high)</i> | | | | | | |
| | 4.40 (1.75) | | 3.23 (1.41)*** | | 5.08 (1.58)*** | |
| <i>Perceived Typical Freshman Approval M(SD)(1=low-7=high)</i> | | | | | | |
| | 5.33 (1.34) | | 5.17 (1.28) | | 5.42 (1.37) | |

^aSignificant differences overall between Facebook and Instagram, as indicated by Students’ T and Chi-Square tests, are indicated by asterisks in the overall columns in the top half of the table;

*
 $p < .05$

**
 $p < .01$

 $p < .001$.

^bSignificant differences between non-drinkers and drinkers are denoted by asterisks in the non-drinker and drinker columns in both the top and bottom halves of the table.

Table 2.
Bivariate Correlations among non-drinkers (above diagonal) and drinkers (below diagonal)

| Variable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|--------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1 FB Use Frequency | - | .294** | .762*** | .523*** | .294** | .480*** | .113 | .139 | .285** |
| 2 IG Use Frequency | .291*** | - | .843*** | .327*** | .769*** | .673*** | .228* | .101 | .342*** |
| 3 FB + IG Use Frequency | .758*** | .844*** | - | .516*** | .687*** | .726*** | .091 | .147 | .392*** |
| 4 FB Likes Alc Posts | .338*** | .148* | .287** | - | .381*** | .780*** | .079 | .007 | .323** |
| 5 IG Likes Alc Posts | .138 | .610*** | .492** | .381*** | - | .871*** | .315** | .001 | .325** |
| 6 FB+IG Likes Alc Posts | .262*** | .464*** | .463** | .784*** | .848*** | - | .220* | .001 | .387*** |
| 7 College Friends' Alcohol Use | .081 | .169* | .161* | .151* | .159* | .191* | - | .141 | .313** |
| 8 Own Approval | .060 | .145* | .133 | .108* | .169* | .192* | .564*** | - | .290** |
| 9 Typ Freshman Approval | .067 | .113 | .115 | .033 | .077 | .071 | .322*** | .618*** | - |

* $p < .05$ ** $p < .01$ *** $p < .001$.

Table 3.

Hierarchical Regression results for centered variables predicting perceptions of typical student drinking approval

| Step | Variables | β | R^2 | R^2 | F | df |
|------|--|----------|-------|---------|----------|--------|
| 1 | <i>Covariates</i> | | .254 | .254*** | 24.81*** | 4, 292 |
| | Sex Female | -.015 | | | | |
| | Own Alcohol Approval | .419*** | | | | |
| | College Friends' Alcohol Use | .063 | | | | |
| | SNS Use Frequency | .129* | | | | |
| 2 | <i>Main Effects</i> | | .301 | .048*** | 9.87*** | 2, 290 |
| | SNS Likes for Others Alc-Related Posts | .04 | | | | |
| | Alcohol Use-Status | -.260*** | | | | |
| 3 | <i>Two-Way Interaction</i> | | .329 | .028** | 11.78** | 1, 289 |
| | SNS Likes*Alcohol Use-Status | -.449*** | | | | |

Note. β reflects values at the step the predictor was first entered

*
 $p < .05$

**
 $p < .01$

 $p < .001$.