Alcohol-related Facebook Postings

RUNNING HEAD: ALCOHOL-RELATED FACEBOOK POSTINGS

Number of Tables: 3

“I will take a shot for every ‘like’ I get on this status”: Posting Alcohol-related Facebook Content Is Linked to Drinking Outcomes

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Abstract

Objective: The study investigated whether self-reports of alcohol-related postings on Facebook by oneself or one's Facebook friends were related to common motives for drinking and were uniquely predictive of self-reported alcohol outcomes (alcohol consumption, problems, and cravings).

Method: Pacific Northwest undergraduates completed a survey of alcohol outcomes, drinking motives, and alcohol-related Facebook postings. Participants completed the survey online as part of a larger study on alcohol use and cognitive associations. Participants were randomly selected through the university registrar’s office and consisted of 1106 undergraduates (449 men, 654 women, 2 transgender, 1 declined to answer) between the ages of 18 and 25 ($M = 20.40$, $SD = 1.60$) at a large university in the Pacific Northwest. Seven participants were excluded from analyses due to missing or suspect data.

Results: Alcohol-related postings on Facebook were significantly correlated with social, enhancement, conformity, and coping motives for drinking (all $p$’s < .001). After controlling for drinking motives, self-alcohol-related postings independently and positively predicted drinks per week, alcohol-related problems, risk of alcohol use disorders, and alcohol cravings (all $p$’s < .001). In contrast, friends’ alcohol-related postings only predicted risk of alcohol use disorders ($p < .05$) and marginally predicted alcohol-related problems ($p = .07$).

Conclusions: Posting alcohol-related content on social media platforms such as Facebook is associated with common motivations for drinking and is, in itself, a strong predictive indicator of drinking outcomes independent of drinking motives. Moreover, self-related posting activity appears to be more predictive than Facebook friends’ activity. These findings suggest that social media platforms may be a useful target for future preventative and intervention efforts.
**Introduction**

“I will take a shot for every ‘like’ I get on this status.” -- Anonymous Facebook user

With similar comments and photos referencing alcohol appearing frequently on social networking sites such as Facebook (Moreno et al., 2009), should we dismiss these references as mere “self-presentation” or are they indicative of real-life behaviors? Alcohol use continues to be a serious issue in college populations (Perkins, 2004; Johnston et al., 2010), even as concerns about the role of social media (e.g., Facebook, Twitter, MySpace) and the sharing of potentially inappropriate content (including comments about and photos of alcohol and/or drug use) in this age group have grown. Use of social media, in general, and Facebook, in particular, are widespread among college students, with over 75% of the US college population reporting active use of a Facebook account (Lenhart et al., 2010). More generally, social media applications such as Facebook appear to be expanding the boundaries of socialization rapidly and may provide an outlet for interacting with friends, fitting in with peers, coping with distress, and simply having fun (Tosun, 2012; Yang et al., 2013), all of which have been associated with problematic drinking among young adults. Given the seriousness of the alcohol issues facing this age group and the ubiquity and importance of social media use in this demographic, it is important to investigate the role that postings on sites such as Facebook may play in predicting and explaining college drinking outcomes.

**Social Networking and Alcohol Use**

The posting of alcohol-related content on Facebook may be related to real-life alcohol outcomes in several ways due to the self-representational (i.e., what you post) and social influence (i.e., what you see your friends posting) aspects of Facebook. For example, if content on Facebook reflects a person’s real-life behaviors, alcohol-related content posted by or about an
individual may provide an informal proxy record of his or her hazardous drinking. Such content may also be related to well-established motives for real-life drinking. On the other hand, exposure to the activity of one’s Facebook friends may in itself be influential. That is, an individual who frequently sees alcohol-related posts by his or her Facebook friends may be more likely to adopt those behaviors or attitudes towards drinking. Although the self-representational aspect is likely to play a more direct role in any link between alcohol-related Facebook usage and drinking behavior, looking at the potential influence of friends’ postings may clarify how online social influence plays in a role in drinking.

Despite the increasingly important role played by social networking sites in college students’ lives, only a handful of studies have examined the relationship between online social networking sites and college students’ alcohol use. These studies have found that alcohol-related content on Facebook is common (Morgan et al., 2010; Moreno et al., 2012), particularly among male college students (Egan and Moreno, 2011). Alcohol-related content on individuals’ profile pages predicts scores on clinical measures of risk for alcoholism (Morgan et al., 2010, Ridout et al., 2012), alcohol-related problems (Ridout et al., 2012), and alcohol consumption (Ridout et al., 2012; Stoddard et al., 2012). In addition, the number of Facebook friends one has also appears to be a risk factor for alcohol outcomes, such that individuals with greater numbers of Facebook friends are more likely to report evidence of hazardous drinking (Moreno et al., 2012; Ridout et al., 2012). In contrast, social norms regarding the acceptability of posting alcohol-related content online do not appear related to alcohol behavior (Stoddard et al., 2012). Although it is unlikely that Facebook plays a direct causal role in drinking behavior, alcohol-related Facebook use may serve as an important outlet and indicator of hazardous drinking and its underlying causes and motivations.
To date, most studies linking Facebook alcohol content and drinking have involved direct coding of actual Facebook profiles (Moreno et al., 2012; Ridout et al., 2012), which is time intensive and requires participants’ permission for account access or reliance on a potentially biased population of individuals who maintain public Facebook profiles with no privacy settings. Even the practice of “friending” research participants to gain viewing access does not preclude the use of privacy filters, which often restrict access to a user’s Facebook content to specific Facebook friends or groups of friends. Thus, this practice can prevent researchers from viewing Facebook activity that a participant considers sensitive or private, which could include alcohol-related postings. Only a single published study has reported use of a self-report measure in assessing alcohol-related Facebook activity (Stoddard et al., 2012), and their alcohol-related outcome variables were confined to alcohol consumption in the past thirty days. Therefore, the aim of the current study was to further develop a self-report measure of alcohol-related Facebook postings (e.g., status updates, wall posts, comments, or photos related to drinking) and evaluate its relation to multiple aspects of self-reported drinking behavior in a large sample of college students from the US Pacific Northwest. Self-report measures have their own drawbacks regarding participants’ ability and willingness to accurately recall past behavior. However, the self-report format, with further validation, would allow researchers to reach a wider participant base (college student or otherwise) and pose questions about participants’ own behavior as well as their perceptions of their friends’ behavior on Facebook news feeds and other platforms. In short, a self-report measure might allow access to information that is currently not accessible to researchers. Thus, a contribution of the present study is that allows us to reach more people, obtain difficult-to-obtain information, and access information about both individuals and their Facebook friends.
Alcohol-related Postings and Drinking Motives

Drinking motives are powerful proximal predictors of alcohol consumption and problems (Cox and Klinger, 1998), especially in college students (e.g., Cooper, 1994). Four main drinking motives have been identified as particularly influential for college students: social, conformity, enhancement, and coping motives (Cooper, 1994; Kuntsche et al., 2008; Mohr et al., 2005).

Social motives are defined as drinking to be sociable and engage in socializing with others, such as at parties or celebrations, while conformity motives refer to drinking to “fit in” or be liked and included by peers. Enhancement motives are reported by individuals who drink to enhance a positive emotional state, such as drinking because it “feels good” or is “fun,” whereas coping motives refer to drinking to relieve stress or cope with negative emotions.

Social and conformity motives, in particular, have strong social components and may potentially encourage alcohol-related social media use as well as real-life drinking behavior. Facebook is an inherently socially motivated activity and may serve some of the same functions as alcohol among students who are socially motivated to drink. Such students may engage in both greater alcohol consumption and more alcohol-related posting on Facebook as an outlet for gratifying such motives. In this same vein, students who view drinking as normatively desirable may post alcohol-related content on Facebook in an effort to fit in and conform to perceived social norms.

Enhancement and coping motives for drinking may likewise be gratified through alcohol-related social media posting. Facebook may provide a complementary means of coping with negative emotions and problems by serving as a distraction or as a means to seek and receive emotional support. It may also serve as a forum for voicing coping motives, such as posts about “needing” a drink after a stressful day at work. In a similar fashion, enhancement motives are
particularly important in the college demographic, who often report drinking to have a good time or because it feels good. To the extent that posting about one’s alcohol use or partying actually enhances the enjoyment of such activities, enhancement motives may also motivate alcohol-related posting on Facebook.

All four drinking motives may, therefore, be associated with heavy alcohol-related Facebook posting, which may satisfy motives in a function similar to actual drinking. The present research extends previous research by evaluating 1) whether social, enhancement, conformity, and coping motives for drinking are associated with increased alcohol-related Facebook use and 2) whether Facebook use is merely a proxy for some or all of those motives or if it actually accounts for unique variance in alcohol-related outcomes above and beyond these motives.

The current study

The current study investigated 1) whether self-reported alcohol-related postings on Facebook by an individual or an individual’s Facebook friends are related to common motivations for drinking and 2) whether such postings are uniquely associated with individuals’ self-reported alcohol outcomes (e.g., alcohol consumption, alcohol-related problems, AUDIT scores, and alcohol cravings). We hypothesized that both measures of alcohol-content on Facebook would be significantly and positively related to drinking motives and alcohol outcomes. We also hypothesized that self-related alcohol content, because it is a more direct reflection of an individual’s thoughts and actions, would be more strongly related to alcohol outcomes than the alcohol-related postings of an individual’s Facebook friends. Furthermore, we hypothesized that the relationship between increased alcohol-related Facebook posting and alcohol outcomes would continue to be significant even when controlling for well-established,
powerful predictors of drinking – i.e., drinking motives. We include such motives as covariates to control for the possibility that alcohol-related Facebook use is merely acting as a proxy for these well-established motives. In addition, we also include gender and number of Facebook friends as covariates to control for their established associations with increased alcohol consumption.

Methods

Procedure

Procedures were approved by the university’s Institutional Review Board. Participants were recruited from a randomized list of approximately 2500 current, full-time undergraduate students between the ages of 18-25 obtained from the university registrar’s office and invited via email to participate in a study about cognitive processes and alcohol. Forty-four percent of the students contacted agreed to participate in the study. They were provided with a link to a website where volunteers underwent informed consent and completed an online battery of questionnaires as part of a screening process for a larger study. Participants were compensated $15 for completing the online survey.

Participants

Participants consisted of 1106 undergraduates (449 men, 654 women, 2 transgender, 1 declined to answer) between the ages of 18 and 25 ($M = 20.40, SD = 1.60$) at a large university in the Pacific Northwest of the US. Fifty-nine percent of students were identified as White/Caucasian, 27% as Asian, 8% as bi- or multi-racial, and the remaining 6% as Black/African American, American Indian/Alaska Native, Native Hawaiian/Other Pacific
Islander, unknown, or declined to answer. Seven participants were excluded from analyses due to failing screening checks for answering randomly, leaving a final sample of 1099 participants.

**Measures**

*Facebook Alcohol Content.* The Facebook Alcohol Questionnaire was developed for this study to assess the degree to which participants post and view alcohol-related content on Facebook. The measure included 10 items. The first item asked participants whether or not they had a current Facebook account. The next six items asked participants to report how often they post alcohol-related content on Facebook (including status updates, comments, and pictures of themselves or others) and how often their Facebook friends post such alcohol-related content on Facebook. Answer choices ranged from 1 “Never” to 5 “Daily.” An additional item asked participants how many Facebook friends they have. Two items, not used for this study, assessed participants’ number of real-life friends and close friends. Copies of the measure are available upon request from the corresponding author.

*Drinking Motives.* Drinking motives were assessed using the social and coping motive subscales of the Drinking Motives Questionnaire [DMQ-R; Cooper, 1994]. Each subscale consists of 5-items asking respondents to indicate how often (1 “Never” to 4 “Always”) they consume alcohol for the social, enhancement, conformity, coping reasons listed. Cronbach’s alphas for the sample were as follows: social motives, .93; enhancement motives, .91; conformity motives, .87; and coping motives: .88.

*Alcohol consumption.* The Daily Drinking Questionnaire [DDQ; Collins et al., 1985] assesses typical weekly alcohol consumption over the past three months. Participants are asked to report how many US standard drinks they consumed on each day of a typical week. Scores
thus reflect the average number of drinks consumed per week in the past three months. Participants were provided with common standard drink equivalencies.

**Alcohol Problems.** The Rutgers Alcohol Problem Index [RAPI; White and Labouvie, 1989] asks participants to report how many times in the past 3 months (from 0 “never” to 4 “more than 10 times”) they experienced 23 symptoms of problem drinking and negative consequences as a result of drinking, ranging from mild (“Had a bad time”) to serious (“Suddenly found yourself in a place that you could not remember getting to”). Two additional items were added asking participants how often they had driven shortly after consuming two and four drinks, respectively. Cronbach’s alpha for the sample was .93.

**Alcohol Use Disorders.** The Alcohol Use Disorders Identification test [AUDIT; Babor et al., 2001] is a widely used 10-item clinical measure that can be used to identify individuals at risk for meeting criteria for alcohol use disorders. Participants are asked how much and how often they typically drink on a typical day, as well as how often they report cravings and problems due to alcohol. Answer choices range from 0 “never” to 4 “daily or almost daily” 4. Cronbach’s alpha for the sample was .84.

**Alcohol Cravings.** Due to the new emphasis in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5; American Psychiatric Association, 2013) on cravings as a diagnostic criterion for substance use disorders, cravings were assessed as a separate outcome variable. Cravings were measured using the Alcohol Craving Questionnaire Short Form-Revised [ACQ; Singleton et al., 1995]. Twelve items measured current alcohol craving (e.g., “If I had some alcohol I would probably drink it”), including alcohol use intentions, anticipated effects of drinking, and lack of control. Responses were measured on a seven-point scale ranging from -3 (strongly disagree) to 3 (strongly agree). The final item of the
ACQ was not administered due to a programming error. Cronbach’s alpha for the sample was .80.

**Analytic Plan**

A three-stage analytic plan was used to test the hypotheses of the study. First, because the Facebook Questionnaire was developed for this study, we investigated its underlying structure. We subjected the six items about alcohol-related Facebook postings to principal components analyses and expected to extract two, three-item factors (one about one’s own postings and one about one’s friend’s postings). Second, in order to examine whether alcohol-related Facebook postings were related to drinking motives and alcohol outcomes, we conducted a series of Pearson $r$ correlations. Finally, to establish whether these postings (self and/or friends) were uniquely related to self-reported alcohol outcomes, a series of regression analyses were conducted – one for each outcome (drinks per week, RAPI scores, AUDIT scores, cravings). Each of those regression analyses controlled for drinking motives because they are power predictors of drinking. Gender and number of Facebook friends were also controlled for. The model testing cravings used ordinary least squares regression because that variable’s distribution approximated normal. The other three outcomes were not normally distributed; therefore, count regression models with a negative binomial log link (see Atkins and Gallop, 2007) were used. Additional detail regarding the count regression models is provided in the “Alcohol-related postings and drinking outcomes” section of the Results.

**Results**

**Factor Analysis of Facebook Questionnaire**

To investigate the underlying structure of the six alcohol-related postings items on the Facebook (FB) Questionnaire, principal components analysis (PCA) with varimax rotation was
performed. Two components were extracted having Eigenvalues of 2.91 and 1.27, respectively. The first component was comprised of four items about one’s own behavior (FB self; e.g., how often do you post alcohol-related status updates/comments or pictures of yourself drinking alcohol, how often your friends post pictures of you drinking alcohol). The second was comprised of two items about friends’ behavior (FB friend; e.g., how often your friends post pictures of themselves drinking, how frequently they mention alcohol in their status updates). We initially expected three items for each component based on the identity of the person posting the information (e.g., the respondent or the respondent’s friends). However, the sixth item (“How often do your friends post pictures of you drinking?”) loaded more strongly on the component regarding one’s own behavior. In retrospect, this finding was not surprising, as the existence of photos of the respondent drinking would necessarily be a direct result of the respondent’s own behavior and thus, more in keeping with the other self-relevant items. Therefore, that item was retained in the FB self component. The two components explained 70% of the variance, with FB self explaining 49% and FB friend explaining 21%. Rotated factor loadings are shown in Table 1. Cronbach’s alphas were computed for each component; reliabilities were strong for both components: FB self = .79, FB friend = .79.

Descriptive Statistics

Descriptive statistics for the sample are shown in Table 2. On average, participants reported consuming six drinks per week on a typical week during the last month and experiencing approximately five alcohol-related consequences over the last three months. With respect to behavior on Facebook, participants reported having an average of 438 friends. FB self
scores were, on average, between “never” and “less than once a month.” FB friend scores were higher -- on average, between “less than once a month” and “monthly.”

To investigate the basic relationships between study variables, Pearson $r$ correlations were conducted. Those zero order are also displayed in Table 2. FB self and FB friend were moderately correlated with each other ($r = .36$). Both FB self and FB friend were positively correlated with the drinking motives and drinking outcomes, with the lowest correlation between FB friend and coping motives ($r = .15$) and the highest correlation with FB self and AUDIT scores ($r = .53$).

**Alcohol-related posting and drinking outcomes**

Finally, we sought to test whether one’s own or one’s friends’ alcohol related postings accounted for unique variance in alcohol-related outcomes (cravings, drinks per week, RAPI scores, and AUDIT scores). A series of regression models were conducted. For each model, the four drinking motives, participant gender, and number of Facebook friends were entered as control variables. FB self and FB friend were the main predictors of interest. All predictors were entered simultaneously in the model, and all predictors other than gender were mean-centered to facilitate interpretation. Gender was dummy-coded (0 = men, 1 = women).

Two types of regression models were used for this investigation. Ordinary least squares regression was used when investigating alcohol cravings because its distribution approximated normal. Because of non-normality in the distribution of the other outcomes, count regression models with a negative binomial log link [see Atkins and Gallop, 2007] were used for those
outcome variables (e.g., drinks per week, RAPI scores, and AUDIT scores). Briefly, count regression models enable one to fit dependent variables with a range of distributions in addition to the normal distribution. In this case, a negative binomial model was a better fit for each of those outcome variables. This model provided a good fit for the three outcome variables – i.e., the ratio of deviance to degrees of freedom was close to 1. Please note that other than the fit of the outcome variable (linear versus negative binomial), each model tested was constructed as described earlier. See Table 3 for regression model statistics.

Drinks per week. FB self, but not FB friend, was a unique and positive predictor of drinks per week ($p < .001$). All control variables also accounted for significant variance in drinks per week. See Table 3.

Alcohol-related problems. FB self again positively and uniquely predicted self-reported alcohol-related problems. The effect for FB friend was marginally significant ($p = .07$) in positively predicting alcohol-related problems. Control variables also accounted for significant variance in alcohol-related problems, with exception of conformity motives.

AUDIT scores. Both FB self and FB friend significantly and positively predicted AUDIT scores ($ps < .05$). Control variables also accounted for significant variance in scores.

Alcohol cravings. FB self, but not FB friend, significantly and positively predicted Alcohol Cravings ($p < .001$). Of the control variables, only conformity motives and the number of Facebook friends did not predict cravings.

Discussion
Results were generally consistent with expectations. As predicted, alcohol-related content on Facebook, both self- and friend-generated, was linked to all four motives for drinking, suggesting that alcohol-related use of Facebook may be motivated by some of the same factors that drive real-life drinking behavior. In addition alcohol-related content posted on Facebook, particularly content about one’s self, was significantly associated with real-life drinking behaviors even after controlling for drinking motives. Frequent posting of self-related alcohol content on Facebook in the form of status updates, comments, and photos was significantly associated with greater self-reported alcohol consumption, more alcohol-related problems, higher scores on a clinical screening measure for risk of alcohol use disorders, and stronger alcohol cravings. Findings related to friends’ posting were mixed. Friends’ postings of alcohol-related status updates, comments, and photos were significantly related to of higher scores on a clinical screening measure for risk of alcohol use disorders, and marginally related to experiencing more alcohol-related problems. However, contrary to expectations, friends’ postings were not significantly associated with greater alcohol consumption or alcohol cravings. Finally, we replicated previous findings that number of Facebook friends was significantly related to alcohol outcomes, such that having more Facebook friends was associated with increased likelihood of meeting clinical criteria for risk of alcohol disorders, greater alcohol consumption and more alcohol-related problems, but not stronger alcohol cravings (Moreno et al., 2012; Ridout et al., 2012). These relationships held true even when controlling for known predictors of drinking, including gender and drinking motives.

Theoretical Implications

Several implications follow from the results of the study. First, by assessing both self- and friend alcohol-related Facebook content, we can directly contrast the role that an individual’s
own Facebook activity and an individual’s friends’ activities play in shaping an individual’s drinking behaviors. This is important from the standpoint of determining whether Facebook plays merely a self-representational role and/or whether a social influence role might also be possible. Consistent with expectations, self-related alcohol posting appears to be more influential than friends’ behavior when examined cross-sectionally. This suggests that the increased association with hazardous drinking may be the result of accurate self-representation on social media platforms rather than the result of social influence. Future research should address why friends’ activity is predictive of risk for meeting clinical criteria for alcohol abuse and dependence, but not actual consumption or cravings. Examining the relationship between self- and friend-postings experimentally could help determine whether these relationships hold when investigated in a controlled laboratory setting. It is possible that the elevated risk of meeting criteria for alcohol-related disorders associated with friends’ frequent posting of alcohol-related content may be primarily due to the potential risks associated with interacting with friends who may themselves be heavy drinkers. In addition, although the present study examines the link between an individual’s Facebook friends and the individual’s own alcohol behavior, the relationship between friends’ social influence and alcohol may be bidirectional. Litt & Stock’s (2011) work in the laboratory suggests that young adolescents may come to view alcohol use more positively and express more willingness to drink after exposure to alcohol-related Facebook posts made by older peers. In addition, there may be differences between in-person versus online exposure to friends’ alcohol use. Future experimental work should determine whether friends’ postings are more important experimentally and/or more important for some individuals or groups, as well as both sides of this potentially bidirectional relationship.
Second, the current study also demonstrates that these relations are found even when controlling for well-established predictors of alcohol use. Self-related alcohol posts are associated with increased risk of hazardous drinking, even after controlling for gender, number of Facebook friends, and common drinking motives. Likewise, having friends who frequently make alcohol-related posts is associated with increases in an individual’s risk of meeting clinical criteria for alcohol disorders. This suggests that alcohol-related activity on Facebook is an important predictor of drinking outcomes that accounts for unique variance not captured by other measures. Given the ubiquity of Facebook in the college student demographic, it is important to understand that activity on Facebook has potentially real and serious off-line implications. Future research should identify and address the factors which make alcohol-related activity on Facebook uniquely predictive of alcohol outcomes.

Third, the present research reveals that posting alcohol-related content on Facebook is correlated with social, coping, conformity, and enhancement drinking motives. This pattern of findings suggests that such postings may potentially be driven by some of the same motives that predict actual drinking and/or by common factors that underlie drinking motives. This supposition, although consistent with study findings, is speculative due to the cross-sectional nature of the study. As such, specific types of alcohol-related postings may reflect and express specific types of underlying drinking motivations. For example, just as socially motivated drinking may be expressed by partying with friends, a socially motivated post about alcohol might display a picture of friends drinking at a party whereas a coping motivated post about alcohol might express the desire to have a few drinks after a really hard day at work. Additional research which integrates self-report measures of Facebook postings with coding of actual posts may further clarify how underlying drinking motivations are expressed through different
classifications of alcohol-related Facebook postings and potentially test for moderating or mediating effects of drinking motives on Facebook use.

**Clinical Implications**

Understanding the role of social media in college student drinking behaviors is important not only from a theoretical perspective, but also from an applied perspective in identifying individuals at risk and facilitating prevention and intervention efforts. Facebook is not only a social media platform but also a powerful advertising tool capable of delivering targeted ad content based on users’ profiles and posting activity. If the presence of alcohol-related content on Facebook is indicative of real-life hazardous drinking, then targeting of those individuals could be done discreetly and anonymously through an automated process and prevention/intervention materials delivered directly to those individuals through Facebook itself. Furthermore, identification of at-risk drinkers through Facebook may also facilitate delivery of off-line intervention efforts, either on the part of individuals or organizations. In addition, students who post alcohol-related content on Facebook or who have friends who do so may also be more likely to receive advertising from alcohol manufacturers. Facebook allows alcohol beverage manufacturers to advertise to individuals over 21 in the US with some content restrictions (Facebook Advertising Guidelines, 2012; Facebook Help Center: Ads & Sponsored Stories Alcohol, nd). Companies can choose to direct ads based on user interest in alcohol (determined by the user’s page “Likes”, apps, and information added to their timeline) as well as their connections to their Facebook friends (Facebook Help Center: Ads & Sponsored Stories Targeting Options, nd). Thus, if one Facebook user “likes” Budweiser’s Facebook page, Budweiser can then choose to target that user’s Facebook friends to receive additional advertising. Therefore, individuals over 21 who post alcohol-related activity on Facebook may
increase their own chances as well as their Facebook friends’ chances of receiving targeted alcohol advertising.

Furthermore, although other studies have examined the effect of Facebook activity on alcohol use, this study is the first to examine alcohol cravings as a distinct outcome variable. This may be especially timely as cravings was added to the diagnostic criteria for substance use disorders in DSM-5 (American Psychiatric Association, 2013).

**Methodological Implications**

To date, the majority of published studies of alcohol-related content on Facebook (Moreno et al., 2012, Ridout et al., 2012) have involved direct coding of actual Facebook profiles. Measures such as the one developed for this study may serve as additional tools for facilitating research on Facebook and social networking sites, as well as identifying potential at-risk individuals who are posting or viewing alcohol-related content. Self-report measures not only save time but also allow for a broader and larger participant base by reducing participant and researcher burden and circumventing Facebook’s built-in privacy filters. In addition, individuals who may be otherwise reluctant to report hazardous drinking behaviors may be more tolerant of answering questions about their Facebook usage. The findings from this study provide initial validation of this approach, but additional validation will be important. For example, future research should attempt to include coding of individuals’ Facebook profiles to provide confirmation that their self-reports about alcohol-related Facebook content correspond with their posting behavior. It is encouraging, however, that findings using this self-report measure are consistent with findings from previous studies that relied on researchers coding actual Facebook profiles (e.g., Moreno et al., 2012, Ridout et al., 2012) -- i.e., using both methods, alcohol-related
content on Facebook predicted actual alcohol consumption, problems related to alcohol, and clinical thresholds for alcohol disorders.

**Limitations and Conclusion**

Although the current study offers a helpful first step in establishing a link between alcohol-related social media use and actual alcohol behavior, study implications are constrained by several, important limitations. The current study presumes that alcohol-related Facebook use may be an expression of drinking motives and risk factors and an indicator (but not a direct cause) of real-life drinking behavior, but a causal influence cannot be either excluded or confirmed due to the cross-sectional nature of the study. In addition, it is difficult to disentangle the role of in-person versus online peer influence. Measures of off-line exposure to friends’ drinking behavior could help clarify what aspects of friends’ influence via social media are unique to the online environment. Additional limitations include the use of a single sample of university students and a reliance on self-reported measures of drinking. Although self-report measures such as the AUDIT, DDQ, and RAPI are well-validated measures of alcohol use, they are not immune to the limitations of self-report measures. Future research involving in vivo alcohol administration or other methods may be useful in confirming that the increase in self-reported drinking associated with higher levels of alcohol-related Facebook posting is, in fact, indicative of real-world drinking. Special care should be taken when using in-vivo alcohol administration in this population, as frequent posters of online alcohol-related content may be at an elevated risk for alcohol-related problems.

Despite these limitations, this study represents an important step to understanding the role of social media in drinking behaviors, and in facilitating research towards this goal. Posting alcohol-related content on social media platforms such as Facebook is associated with common
motivations for drinking and is, in itself, a strong predictive indicator of drinking outcomes independent of drinking motives. This is particularly the case for self-related alcohol postings, which were stronger predictors of drinking behavior than the alcohol-related Facebook activity of one’s friends. With additional validation, this measure could serve to identify individual at risk for hazardous drinking. Furthermore, social media platforms such as Facebook could also represent an additional means for delivering prevention or interventions.
References


Alcohol-related Facebook Postings


Table 1. Rotated factor loadings for the Facebook Alcohol Questionnaire.

<table>
<thead>
<tr>
<th>Questionnaire items</th>
<th>Component 1 FB Self</th>
<th>Component 2 FB Friend</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How often do you post pictures of yourself drinking alcohol on Facebook?</td>
<td>.88</td>
<td>.05</td>
</tr>
<tr>
<td>2. How often do you post pictures of other people drinking alcohol on Facebook?</td>
<td>.83</td>
<td>.08</td>
</tr>
<tr>
<td>3. How often do you mention alcohol in your status updates, comments, or wall posts on Facebook?</td>
<td>.66</td>
<td>.22</td>
</tr>
<tr>
<td>4. How often do your Facebook friends post pictures of themselves drinking alcohol on Facebook?</td>
<td>.21</td>
<td>.88</td>
</tr>
<tr>
<td>5. How often do your friends post pictures of you drinking alcohol on Facebook?</td>
<td>.71</td>
<td>.28</td>
</tr>
<tr>
<td>6. How often do your Facebook friends mention alcohol in their status updates, comments, or wall posts on Facebook?</td>
<td>.12</td>
<td>.90</td>
</tr>
</tbody>
</table>

Note. $n = 1051$. Total N = 1099. Missing data are due to skipped items in participants’ responses.