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Capturing the Bigger Picture: A Gestalt of General and Alcohol-Specific Social Media Usage During the Transition to College as a Predictor of First-Year Alcohol Use and Consequences

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Abstract

Previous research has shown a reliable association between social media (SM) use and drinking among college students. However, most studies have investigated SM behaviors (e.g., time spent on a platform, posting frequency) in isolation and on a single site. While some have studied multiple SM behaviors across platforms using person-centered approaches (e.g., latent profile analysis [LPA]), these studies have failed to take alcohol-related SM behaviors into account. This longitudinal study addressed this gap in the literature by using LPA to identify subpopulations of SM users during the college transition (N=319; 62.1% female) using general (frequency of checking, time spent on, and frequency of posting to Instagram/Facebook/Snapchat; Finstagram ownership) and alcohol-related SM behaviors (posting alcohol, partying, and marijuana content). LPA results revealed three SM user profiles at baseline: low general use with low alcohol-related posting (LGU+LAP), high general use with low alcohol-related posting (HGU+LAP), and high general use with high alcohol-related posting (HGU+HAP). Prospective analyses revealed that HGU+HAP membership was associated with greater descriptive peer drinking norms, alcohol use, and consequences relative to HGU+LAP and LGU+LAP membership. Results suggest that there are distinct patterns of general and alcohol-related SM use during the college transition associated with risky drinking that can inform interventions combating SM-related alcohol risks. These findings illustrate the importance of investigating SM use holistically and suggests studying

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Contributors

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Conflict of Interest

All authors declare that they have no conflicts of interest.

alcohol-related SM behaviors may reveal differences in individuals' alcohol risk that general SM behaviors might not capture.

Keywords

underage alcohol use; college students; negative consequences; social media

1. Introduction

Social media (SM) sites such as Instagram, Facebook, and Snapchat have become an integral part of college students' lives (Alhabash & Ma, 2017; Boyle et al., 2017; Ceballos et al., 2018), with most college-aged individuals reporting daily or regular use of SM (Perrin, 2015; Perrin & Anderson, 2019; Villanti et al., 2017). One well-documented association with SM use among college students is increased alcohol consumption and consequences (e.g., Curtis et al., 2018; Foster et al., 2020; Steers et al., 2019, 2021). Heavy drinking among college students is a major health issue (Schulenberg et al., 2021). The transition to college is a period when college alcohol risk trajectories typically develop (e.g., Derefinko et al., 2016; Hultgren et al., 2019; National Institute on Alcohol Abuse and Alcoholism, 2002, 2020; Riordan & Carey, 2019), making it an important period for interventions. Alcohol use during the first and subsequent years of college has been linked to two categories of modifiable SM behaviors that could be targeted in interventions or used to identify at-risk/high-risk drinkers for interventions: (a) general-use-focused variables (e.g., more time spent on SM; using two or more platforms concurrently; having Snapchat; Foster et al., 2020; LaBrie et al., 2021a), and (b) alcohol-related SM variables (e.g., posting about alcohol, following alcohol companies; Barry et al., 2016; Curtis et al., 2018; Thompson & Romo, 2016). Despite the robust literature that demonstrates associations between SM use and drinking among college students, no study has comprehensively analyzed the effects of general and alcohol-related SM behaviors together on drinking using a person-centered approach such as latent profile analysis (LPA).

Findings on the effects of general SM behaviors on alcohol use demonstrate that college student drinking is associated with checking SM platforms more frequently and spending more time on SM (Boyle et al., 2018; Brunelle & Hopley, 2017; Foster et al., 2020; LaBrie et al., 2021a). General use of Instagram, Facebook, and Snapchat, three of the most popular SM platforms among college-aged young adults (Alhabash & Ma, 2017; Perrin & Anderson, 2019; Villanti et al., 2017), are each associated with drinking (Boyle et al., 2018; Ceballos et al., 2018; Foster et al., 2020). Using more than one platform (Ceballos et al., 2018) and having a Finstagram account (an Instagram account characterized by tight privacy settings that is only visible to a small and carefully curated group of friends; LaBrie et al., 2021b) are also associated with measures of drinking risk. The primary pathway by which general SM use increases alcohol risk among young adults is exposure to alcohol-related content (Moreno & Whitehill, 2014; Vannucci et al., 2020). The Facebook Influence Model (Moreno et al., 2013; Moreno & Whitehill, 2014) posits that SM exposes young adults to larger network of peers and peer behaviors than can be observed in face-to-face contexts, and with this larger network comes a greater likelihood of seeing positive references to alcohol and

depictions of drinking as well as peer reinforcement for such content (i.e., views, likes, comments). With time, repeated exposure can lead to changes in alcohol cognitions (e.g., peer drinking norms) and, in turn, increases in consumption (e.g., Boyle et al., 2016; LaBrie et al., 2021a; Strowger et al., 2022).

Alcohol-related SM behaviors, most notably posting alcohol-related text and images on SM, have also been linked to alcohol-related cognitions and patterns of consumption associated with increased risk among college students. Specifically, posting alcohol-related content is associated with higher perceptions of peer drinking norms (e.g., Erevik et al., 2017; Miller et al., 2014), greater frequency and quantity of alcohol use (e.g., Miller et al., 2014; Rodriguez et al., 2016; Steers et al., 2019, 2021), problematic alcohol use (e.g., D'Angelo et al., 2014; Westgate et al., 2014), and negative alcohol-related consequences (e.g., Ridout et al., 2012; Thompson & Romo, 2016). Although most research in this area has been cross-sectional, the Facebook Influence Model posits that posting alcohol-related content can lead the poster to increase their drinking over time due to the positive reinforcement they receive from views, likes, and comments from peers (Moreno & Whitehill, 2014; Vannucci et al., 2020).

Research described thus far has focused on identifying and explaining which SM behaviors may be associated with drinking risk (i.e., variable-centered studies). An alternative analytic strategy that can be employed to understand the association between alcohol use and several SM behaviors simultaneously is the person-centered approach. Person-centered approaches, such as LPA, can be used to identify "hidden groups in data by obtaining the probability that individuals belong to a different group" (Ferguson et al., 2020, p. 458). These groups are themselves an outcome that provide insights into different patterns of behaviors (e.g., profiles that reflect different patterns of frequency and duration of SM use; Russell et al., 2022). With these profiles, researchers can then explore the relationship between profiles and theoretically relevant constructs that can inform prevention-intervention efforts.

To our knowledge, there are currently only two published studies that have employed person-centered strategies to identify subpopulations of SM users and used these profiles to examine drinking risk in young adults (Ilakkuvan et al., 2019; Russell et al., 2022).[1] Both of these studies were cross-sectional and focused solely on participants' general use on SM platforms to identify profiles. For instance, most recently Russell and colleagues (2022) conducted a LPA with frequency of checking Instagram, Facebook, and Snapchat and minutes spent per occasion on each of these platforms as indicators which revealed three distinct SM use profiles: (a) low use; (b) high frequency, low duration; and (c) high frequency, high duration. They also found that the high frequency and duration SM users reported greater alcohol use and consequences. These findings offer initial support for the notion that young adult SM users are not a homogenous group and differences in frequency and duration of use across Instagram, Facebook and Snapchat may help to identify riskier drinkers.

[1]Tang and Patrick (2019) investigated general SM use as one indicator in a LPA predicting alcohol use. However, their sample was comprised of early adolescents (8–10th graders) and the identified profiles were indicative of technology use overall and included other variables irrelevant to the current investigation (e.g., talking on the phone, playing video games).

Although informative, only including general SM use behaviors as indicators in previous person-centered SM-alcohol studies is likely to have led to the identification of profiles that lump together heavy SM users who are and are not risky drinkers, making it difficult to identify which SM behaviors and users are most at risk and in need of an intervention. Indeed, findings from variable centered studies support the notion that heavier SM use is associated with heavier drinking (Boyle et al., 2018; Ceballos et al., 2018; Foster et al., 2020). However, it is unlikely that heavy SM users are all risky drinkers given that daily SM use is more common among young adults (e.g., ~2 hours per day on SM and ~5 hours per day on smartphones; LaBrie et al., 2021a; Lepp et al., 2015) than drinking (e.g., only 56% of college students report drinking in the past month; Schulenberg et al., 2021). As such, the current study aimed to identify whether heavy SM users make up a homogenous or heterogenous group by conducting a LPA that included both general (time spent on Instagram, Facebook, and Snapchat, Finstagram account ownership) and alcohol-related SM use behaviors (posting about alcohol use, partying, and marijuana use). In addition to Finstagram, including the frequency with which students post about alcohol, partying, and marijuana,[2] which together reflect offline use of and participation in heavy drinking situations (e.g., Lipperman-Kreda et al., 2018; McCabe et al., 2021), should help to differentiate heavy SM users into at least two heavy SM use profiles that differ based on alcohol-related posting (e.g., those who post alcohol-related content frequently and those who do not). Based on previous findings suggesting that Snapchat and Finstagram are risk factors for alcohol use, the group that posts more frequently about alcohol-related content should also be more active on Snapchat and have a greater probability of owning a Finstagram account compared to other profiles that might be identified in this study.

To conduct a LPA testing our hypothesis that heavy SM users are not a homogenous group, this study utilized existing data from a longitudinal study that was designed to examine SM-related alcohol risk during the transition to college. Items assessing general and alcohol-related SM use behaviors pre-matriculation were first used to conduct a LPA to identify unique SM use profiles for incoming college students. As described above, we anticipated finding at least two heavy SM use profiles, one with high frequency of alcohol posting and another with low frequency. Based on Russell et al. (2022), a low SM use profile was also expected. Next, the SM use profiles identified were examined as predictors of perceived descriptive and injunctive drinking norms one month into the first year of college as well as alcohol use and consequences six months into the first year. Consistent with the Facebook Influence Model, we anticipated that self-reported perceived drinking norms and negative consequences would be lower in profiles that had less activity on Snapchat, lower probability of owning a Finstagram account, and less frequent posting of alcohol-related content. Importantly, the associations between the SM use profiles identified here and normative beliefs will help to inform intervention efforts about different types of SM users

[2]Although partying and marijuana use were not a focus of this study, the inclusion of posting about these behaviors, which are linked to heavier drinking (i.e., parties are situation where heavier drinking is common; marijuana is a substance that is often used by drinkers and in combination with alcohol; Gunn et al., 2018; Lipperman-Kreda et al., 2015, 2018; Yurasek et al., 2017), should not only help us to identify SM user profiles that are more closely linked to drinking risk, but will also help to generate profiles that could be used in future studies that should also predict marijuana use or simultaneous alcohol and marijuana use. Including these indicators should also improve the likelihood that these profiles will replicate in future studies (i.e., quality and number of indicators contribute to the replicability of profiles; see Wurpts & Geiser, 2014).

who might benefit from normative re-education programs designed to specifically combat SM influences.

2. Method

2.1. Recruitment and Procedures

Incoming first-year students were invited to participate in a longitudinal study one month before matriculation (see LaBrie et al., 2021c for more information). Interested participants were first screened for eligibility (18–20 years old, plan to live on campus during their first year, own an iPhone or Android smartphone, have at least one active SM account) and those who were eligible were asked to complete the baseline survey prior to matriculation in July/August 2017 (T1) and two follow-ups post-matriculation (October 2017 [T2] and March/April 2017 [T3]). Participant retention at T3 was excellent (N=305; 95.6%). Participants received $20 for completing each survey. This study was approved by the institution's IRB.

2.2. Participants

Participants were 319 incoming college students (62.1% female) with a mean age of 18.06 years (SD_{age}=0.26). The participants were racially and ethnically diverse (59.2% White/Caucasian; 16.0% Asian; 11.0% Black/African American; 12.8% multiracial/other; 20.7% Hispanic), closely mirroring the racial and ethnic makeup of the host institution's student body.

2.3. Measures

Descriptive statistics for all measures can be found in Table 1.

2.3.1. Indicators of Self-Reported SM Use (T1)—Participants were asked to complete 13 indicators of SM use (12 continuous and 1 binary; Table 1) (Boyle et al., 2016, 2018; LaBrie et al., 2021b, 2021c). Continuous indicators assessed how often participants checked (from 0 [I don't have an account] to 7 [7 or more times a day]), perceived average minutes per day spent on, and how often participants posted on Instagram/Facebook/Snapchat (from 0 [Never] to 7 [7 or more times a day]), as well as how often participants' own posts related to: partying, clubbing, going out; alcohol, getting drunk, being hung-over; and marijuana, pot paraphernalia, getting high (from 0 [Never] to 4 [Always]). The one binary indicator assessed whether participants did or did not have a Finstagram account.

2.3.2. Typical Weekly Drinking (T1 and T3)—The Daily Drinking Questionnaire (Collins et al., 1985) assessed typical weekly drinking at both T1 and T2. Participants indicated how many drinks they consume on each day of a typical week in the past month. One drink was defined as 12 oz. of beer, 8–9 oz. of malt liquor, 5 oz. of table wine, or 1.5 oz. of 80-proof spirits. The number of drinks reported on each day were summed to create a composite variable for typical weekly drinking at T1 and T3.[3]

[3]Skew and kurtosis for typical weekly drinking at T1 and T2 exceeded 2 and 5, respectively, so outliers were adjusted to within 3.29 *SD*s of the mean (Tabachnick & Fidell, 2019).

2.3.3. Negative Consequences (T3)—Participants completed 10 items adapted from the Brief Young Adult Alcohol Consequences Questionnaire (Kahler et al., 2005) and Young Adult Alcohol Problems Screening Test (Hurlbut & Sher, 1992) at T3. Items assessed physical, academic, and sexual consequences experienced in the past month (see LaBrie et al., 2016). Response options for each item ranged from 1 (Never) to 5 (10 or more times). Answers were summed to calculate a negative consequences score (α=.90).

2.3.4. Perceived Descriptive Peer Drinking Norms (T1 & T2)—Participants completed the Drinking Norms Rating Form (Baer et al., 1991) as a measure of perceived descriptive peer drinking norms. This measure asks participants to indicate how many drinks they think the typical first year same-sex student at their university drank on each day of a typical week in the past month. The total number of perceived drinks per week were summed to create a measure of descriptive drinking norms.

2.3.5. Perceived Injunctive Peer Drinking Norms (T1 & T2)—Perceived injunctive peer drinking norms were assessed by asking participants how acceptable or unacceptable they thought the typical student at their university found each activity: (1) playing drinking games, (2) drinking shots, (3) drinking to get drunk, (4) drinking alcohol every weekend, (5) drinking under the age of 21, (6) drinking alcohol daily, and (7) drinking enough alcohol to pass out (Boyle et al., 2018). Response options ranged from 1 (Unacceptable) to 7 (Acceptable). These seven items were then summed (T1: α=.88; T2: α=.88).

2.4. Analytic Strategy

LPA was conducted in Mplus to identify subpopulations of individuals based on SM site use and activity. Use patterns were modeled as a categorical latent variable indicated by 12 continuous indicators[4] and 1 dichotomous indicator (Table 1). Five criteria were used to determine the optimal number of latent profiles: (a) fit indices (–*LL,* AIC, BIC; Supplemental Table 1), (b) BLRT, (c) parsimony, and (d) model interpretability (Collins & Lanza, 2010). LPA models generate three sets of parameters: (a) membership probabilities for each latent class, (b) means for each of the continuous indicators, and (c) item-response probabilities for the dichotomous indicator (Supplemental Table 2). Means and item-response probabilities were used to determine parsimony and model interpretability (among the models that were best fitted to the data). LPA models with two to seven latent classes were conducted and compared. Next, the BCH method (Asparouhov & Muthén, 2014) was used to examine profiles as predictors of typical weekly drinking, consequences, descriptive norms, and injunctive norms (separate models). Baseline drinking was included as a covariate in models assessing typical weekly drinking and consequences; birth sex was included as a covariate in all models.

[4]We conducted a second LPA model to determine if results would change if we ran the same models as in the main text but with outlier adjusted (winsorized) versions of the average minutes per day on Facebook, Instagram, and Snapchat indicators. Results revealed that including the adjusted indicators in the LPA did not affect the interpretation of the profiles or the profile sizes. Using the outlier adjusted profiles to predict alcohol outcomes and perceived drinking norms also revealed identical results to what is reported in the main text.

3. Results

Almost all participants reported having accounts on Instagram (95.3%), Facebook (90.6%), and Snapchat (93.1%). A total of 57.7% of the sample reported posting about partying, clubbing, going out; 25.1% reported posting about alcohol, getting drunk, being hung-over, and 14.4% reported posting about marijuana, pot paraphernalia, getting high. Further, 31.5% of the sample reported having a Finstagram account.

3.1. Latent Profile Analysis Model Selection

Fit indices for LPA models with two to seven classes suggest that the three- and four-class models were best fitted to the data (Supplemental Table 1). The *–LL,* AIC, and BIC were lower in the four-class solution than the three-class one. However, we retained the three-profile solution because membership probabilities in one of the four-profile profiles was <5%, and all profiles in the three-profile solution were >.10% (see Ferguson et al., 2020; Supplemental Table 2).

3.1.1. Description of Three-Class Solution—The first latent profile, which was also the smallest group, was labeled *Low General SM Use + Low Alcohol-Related Posting* (LGU+LAP; 10.0%, n=32) for the following reasons: (a) lowest on general SM use behaviors, with one exception (highest number of minutes per day spent on Facebook); (b) lowest on alcohol-related posting; and (c) lowest probability of having a Finstagram account (Table 2). The second and third latent profiles were labeled *High General SM Use + Low Alcohol-Related Posting* (HGU+LAP; 75.5%, n=241) and *High General SM Use + High Alcohol-Related Posting* (HGU+HAP; 14.4%, n=46), respectively. As illustrated in Table 2, members of the HGU+LAP and HGU+HAP groups were higher on general SM use relative to the LGU+LAP group except for minutes per day on Facebook. Although members of the HGU+LAP and HGU+HAP groups were both considered high in their general use of SM, HGU+HAP group members spent more time on and posted more to Snapchat than those in the HGU+LAP group. Additionally, HGU+HAP group members posted more alcohol-related content than members of the other two groups and were the only ones who were >50% likely to have Finstagram accounts.

3.2. Class Membership as a Predictor of Alcohol Use and Consequences

As illustrated in Table 3, the HGU+HAP group reported significantly more drinks per week (T3), more consequences (T3), and higher descriptive norms (T2) relative to HGU+LAP and LGU+LAP. HGU+HAP also reported higher injunctive norms (T2) relative to LGU+LAP. The HGU+LAP group also reported significantly more drinks per week (T3) and higher descriptive and injunctive norms (T2) when compared to LGU+LAP.

4. Discussion

Findings revealed three unique SM user profiles (LGU+LAP, HGU+LAP, and HGU+HAP) that differed by frequency and duration of use across three of the most popular SM platforms, and by alcohol-related posting behaviors. As expected, the highest risk group, HGU+HAP, was characterized by high use of Snapchat, greater odds of having a Finstagram

account, and posting more content to SM sites about alcohol and other related behaviors. The frequency and duration components of our profiles were somewhat consistent with those reported by Russell et al. (2022), with the highest risk profiles in each study reporting the greatest use of Snapchat. More importantly, the current findings extend Russell and colleagues' (2022) work by incorporating alcohol-related SM behaviors into the latent profiles and by demonstrating that the profiles can longitudinally predict perceived peer drinking norms, a mechanism that can be used to combat SM-related risk in interventions (Boyle et al., 2021), and alcohol use and consequences during the transition to college, a period linked to the development of risky drinking trajectories (e.g., Riordan & Carey, 2019).

Consistent with the Facebook Influence Model's predictions that alcohol-related posting and exposure to alcohol-related content can lead to escalations in drinking over-time, the HGU+HAP group reported increases in perceived peer drinking norms and alcohol use and greater consequences at follow-up than did the HGU+LAP group. This is presumably due to peer reinforcement for their alcohol-related posts and greater exposure to alcohol-related content due to their usage of high-risk accounts (i.e., Snapchat and Finstagram). In the context of this model, the current findings suggest that peer reinforcement effects associated with alcohol-related posting may be rather immediate among posters whereas repeated exposure to such content over a longer period due to heavy general SM use may be required for prospective escalations in consumption to be observed among those not posting alcohol-related content. Further, findings suggest that where students spend their time on SM (e.g., Snapchat and Finstagram) may be more relevant than how much time they spend on SM in general, given that exposure to alcohol-related content is unlikely to be equivalent across SM platforms (e.g., Boyle at al., 2017). Future studies are needed to further explore these explanations, especially the degree to which positive peer feedback (e.g., likes, comments) for alcohol-related posts accounts for the increases in drinking norms, consumption, and consequences observed in this study.

4.1. Implications

Findings suggest that combining general and alcohol-specific SM behaviors in a LPA can identify patterns of risky SM use that may be overlooked if using general SM behaviors alone. Knowledge of these real-world patterns can inform intervention and prevention efforts aimed at mitigating SM alcohol influences. For instance, the current findings highlight increased alcohol risk and need for intervention among heavy users of Snapchat and Finstagram account owners who post substance-related content during the transition to college. As suggested by the Facebook Influence Model, interventions designed to reduce or eliminate substance-related postings among these high-risk students might not only prevent their own prospective escalations in drinking but also decrease or eliminate subsequent exposure to this content among peers using these platforms heavily. Interventionists seeking to reduce alcohol risk during the first year of college might fruitfully target these high-risk students via ads on Snapchat on Instagram which communicate that posting substance-related content violates university standards, or social norms marketing campaigns designed to reinforce the low prevalence of substance-related SM posting among classmates. Findings also indicate that interventions aimed at combating the effects of SM use on drinking may

be most effective if delivered pre-matriculation and/or during the first few weeks of college (prior to SM-related increases in drinking norms and alcohol use).

4.2. Limitations and Future Directions

Findings from this study must be considered alongside limitations. First, the current sample was from one mid-sized private university on the West Coast. However, the sample was demographically diverse and yielded findings consistent with those from studies using a different sample of young adults both attending and not attending college (Russell et al., 2022), providing some confidence that the identified subpopulations will replicate in future research. A second limitation is that participants were not asked about exposure to substance-related content posted by peers nor about the specific platforms on which they posted substance-related content. Inclusion of this data may have revealed additional profiles or more precise profiles able to better explain associations between SM use and risky drinking. As such, researchers that wish to extend this line of work should assess alcohol-related posting behavior as well as exposure to such content on each platform. Finally, future studies should explore the relationship between SM profiles and demographics (e.g., gender identity, race, ethnicity), which the current study was not designed to do.

4.3. Conclusion

Findings revealed three subpopulations of SM users using general and alcohol-specific SM behaviors as profile indicators that differed on drinking risk during the first year of college. Results illustrate that a pattern of SM use that includes more time spent using Snapchat, more frequently posting alcohol-related content, and having a Finstagram account is associated with changes in drinking norms and heavier alcohol use. Findings also suggest that investigating both general and alcohol-related SM behaviors using a person-centered approach can reveal associations between SM use and alcohol use that may not be apparent when investigating general SM behaviors alone. As such, we recommend that researchers studying SM behaviors take a more holistic approach to better understand its role and impact on college drinking.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Highlights

- Latent profile analysis was used to identify social media (SM) use profiles during the transition to college.
- Three distinct profiles of SM users were identified.
- Profiles predicted perceived peer drinking norms during the first month of college.
- Profiles predicted alcohol use and consequences six months into college.
- The highest risk profile consisted of higher general SM use and high alcohol-related posting.

Table 1.

Descriptive statistics for indicators included in LPA model.

Indicators	Scale	Min	Max	*M*(*SD*)
How often do you check your…				
Instagram account?	0–7	0	7	5.57(1.76)
Facebook account?	0–7	0	7	3.31(2.05)
Snapchat account?	0–7	0	7	5.89(1.93)
On average, how many minutes per day do you think you spend on…				
Instagram?	---	0	360	49.96(52.04)
Facebook?	---	0	300	18.29(30.08)
Snapchat?	---	0	600	57.51(67.98)
How often do you post on…				
Instagram?	0–7	0	6	1.77(0.92)
Facebook?	0–7	0	7	0.90(1.04)
Snapchat?	0–7	0	7	4.55(1.96)
How often are your own posts related to…				
partying, clubbing, going out?	0–4	0	4	1.03(1.08)
alcohol, getting drunk, being hung-over?	0–4	0	4	0.42(0.83)
marijuana, pot paraphernalia, getting high?	0–4	0	4	0.24(0.67)
Do you have a Finstagram?	0=No 1=Yes			

Validity Measures	Min.	Max.	*M*(*SD*)
Typical weekly drinking (T1)	0	18	2.99(4.82)
Typical weekly drinking (T3)	0	35	8.75(9.04)
Negative consequences (T3)	10	50	12.54(4.22)
Descriptive drinking norms (T1)	0	32	10.80(6.97)
Descriptive drinking norms (T2)	0	35	11.68(6.00)
Injunctive drinking norms (T1)	1	7	4.14(1.19)
Injunctive drinking norms (T2)	1	7	4.58(1.07)

Table 2.

Three-profile model – means (continuous indictors) and probability (Finstagram).

		Three Profile Model		
		1	**2**	**3**
		LGU+LAP	**HGU+LAP**	**HGU+HAP**
Class counts and Proportions – *n*(%)		**32(10.0%)**	**241(75.4%)**	**46(14.6%)**
Indicator		***Mean***	***Mean***	***Mean***
How often do you check your…				
Instagram?		3.362	**5.876**	5.528
Facebook?		2.843	**3.400**	3.176
Snapchat?		0.855	6.456	**6.539**
On average, how many minutes per day do you think you spend on…				
Instagram?		21.813	**53.665**	50.706
Facebook?		**21.001**	18.539	14.997
Snapchat?		6.233	61.391	**73.981**
How often do you post on…				
Instagram?		1.386	1.766	**2.038**
Facebook?		0.706	**0.939**	0.798
Snapchat?		1.646	4.502	**5.511**
How often are your own posts related to…				
partying, clubbing, going out?		0.534	0.868	**2.230**
alcohol, getting drunk, being hung-over?		0.121	0.131	**2.181**
marijuana, pot paraphernalia, getting high?		0.030	0.073	**1.261**
		Probability	***Probability***	***Probability***
Do you have a Finstagram?	No	**1.000**	0.679	0.493
	Yes	0.000	0.321	0.507

Note. Bold denotes the highest mean/probability across the three profiles. LGU+LAP=Low General SM Use + Low Alcohol-Related Posting; HGU+LAP=High General SM Use + Low Alcohol-Related Posting; HGU+HAP=High General SM Use + High Alcohol-Related Posting.

Table 3.

SM use profiles predicting subsequent typical weekly drinking, negative consequences, and perceived descriptive and injunctive peer drinking norms (separate models).

	Typical Weekly Drinking (T3)			
	***b*(*SE*)**	***p*-value**	***b*(*SE*)**	***p*-value**
LGU+LAP	*ref*	*ref*	–3.63(1.77)	.040
HGU+LAP	3.63(1.77)	.040	*ref*	*ref*
HGU+HAP	7.12(2.37)	.003	3.49(1.65)	.035
Typical Weekly Drinking (Baseline)	0.51(0.12)	<.001	0.51(1.23)	<.001
Female	−3.40(1.06)	.001	−3.40(1.06)	.001
	Negative Alcohol Consequences (T3)			
	***b*(*SE*)**	***p*-value**	***b*(*SE*)**	***p*-value**
LGU+LAP	*ref*	*ref*	–1.14(0.86)	.183
HGU+LAP	1.14(0.86)	.183	*ref*	*ref*
HGU+HAP	3.01(1.24)	.015	1.87(0.92)	.042
Typical Weekly Drinking (Baseline)	0.14(0.06)	.025	0.14(0.06)	.025
Female	–0.87(0.59)	.139	–0.87(0.59)	.139
	Descriptive Peer Drinking Norms (T2)			
	***b*(*SE*)**	***p*-value**	***b*(*SE*)**	***p*-value**
LGU+LAP	*ref*	*ref*	–2.19(0.84)	.005
HGU+LAP	2.19(0.84)	.005	*ref*	*ref*
HGU+HAP	4.10(1.19)	.001	1.91(0.97)	.049
Descriptive Peer Drinking Norms (Baseline)	0.40(0.06)	<.001	0.40(0.06)	<.001
Female	–2.10(0.65)	.001	–2.10(0.65)	.001
	Injunctive Peer Drinking Norms (T2)			
	***b*(*SE*)**	***p*-value**	***b*(*SE*)**	***p*-value**
LGU+LAP	*ref*	*ref*	–0.76(0.27)	<.001
HGU+LAP	0.76(0.27)	<.001	*ref*	*ref*
HGU+HAP	0.81(0.22)	<.001	0.05(0.17)	.769
Injunctive Peer Drinking Norms (Baseline)	0.38(0.06)	<.001	0.38(0.06)	<.001
Female	0.10(0.12)	.383	0.10(0.12)	.383

Note. LGU+LAP=Low General SM Use + Low Alcohol-Related Posting; HGU+LAP=High General SM Use + Low Alcohol-Related Posting; HGU+HAP=High General SM Use + High Alcohol-Related Posting.