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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Support for this research was provided by the NIAAA (grant R21 AA024853). The NIAAA had no role in the study design, collection, analysis, or interpretation of the data, writing the manuscript, or the decision to submit the paper for publication. The effort of Dr. F.A. Montiel Ishino was supported by the Division of Intramural Research, National Institute on Minority Health and Health Disparities, National Institutes of Health. The content is solely the responsibility of the authors and does not necessarily reflect the views of the National Institutes of Health.

This article was previously titled “Identifying Distinct Patterns of Social Media Usage During the Transition into College as Predictors of First-Year Alcohol Use and Consequences: A Latent Profile Analysis”

Under Review at Addictive Behaviors

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 ($N=319$) 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 subpopulations 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). Baseline drinking, injunctive norms, and alcohol beliefs were associated with greater odds of HGU+HAP membership. Prospective analyses revealed that HGU+HAP membership was associated with greater 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 also illustrate the importance of investigating alcohol-related SM behaviors and analyzing multiple SM user behaviors across multiple platforms simultaneously in future studies.

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

1. Introduction

Over the last decade, 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 is increased alcohol consumption and consequences (e.g., Brunelle & Hopley, 2017; Foster et al., 2020; LaBrie et al., 2021a; Miller et al., 2014; Rodriguez et al., 2016; Steers et al., 2019, 2021; D'Angelo et al., 2014; Westgate et al., 2014; Thompson & Romo, 2016). Heavy drinking among college students is a major health issue (Schulenberg et al., 2019) linked to two categories of SM behaviors: (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 underage adults, no study has comprehensively analyzed the effects of these two constructs together (i.e., general and alcohol-related SM behaviors) on drinking using a person-centered approach such as latent profile analysis (LPA).

Published studies that examined the effects of general SM behaviors on alcohol use have demonstrated 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). One's 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). Further, using more than one platform (Ceballos et al., 2018) and having a Finstagram account (a portmanteau combining “fake” and “Instagram”; a kind of account characterized by tight privacy settings that is only visible to a very small and carefully curated group of friends; LaBrie et al., 2021b) are also associated with measures of drinking risk.

Alcohol-related SM behaviors, most notably posting alcohol-related content to SM (e.g., text-based status updates referencing alcohol, photos depicting drinking or partying), have also been linked to several measures of risky drinking. Specifically, past studies indicate that posting alcohol-related content can be associated with 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). Posting alcohol-related SM content has also been associated with alcohol-related cognitions such as higher perceived descriptive (Erevik et al., 2017; Miller et al., 2014) and injunctive alcohol norms (Steers et al., 2019), both of which are predictors of drinking (e.g., Krieger et al., 2016; Lac & Donaldson, 2018; Neighbors et al., 2007).

While most studies have demonstrated that individual SM behaviors can be risk factors for college student drinking, only a minority have investigated more than one SM behavior at a time across multiple SM platforms (Brunelle & Hopley, 2017; Ceballos et al., 2018; Erevik et al., 2017, 2018; Foster et al., 2020; Thompson & Romo, 2016). These variable-centered studies are also inconsistent in terms of the combination of SM behaviors and platforms that were examined, and only three included Instagram, Facebook, and Snapchat (Ceballos et al., 2018; Erevik et al., 2017; Foster et al., 2020). As such, it is difficult to determine the specific constellation of SM

behaviors most associated with alcohol-related risks so those platform-specific behaviors can be targeted in interventions. One plausible solution to this problem is to use person-centered analyses to examine subpopulations of SM users derived from multiple SM behaviors (general and alcohol-specific) across multiple platforms (Instagram, Facebook, and Snapchat). Unlike variable-centered analyses, the person-centered approach can be used to demonstrate whether the combination of many SM user behaviors is a more meaningful indicator of risky drinking than any single behavior in isolation.

Prior studies that have employed person-centered approaches such as LPA to examine the effects of SM behaviors across multiple platforms as they naturally occur—in combination with each other—on alcohol use are scarce. To our knowledge, there are only two studies to date that have employed these analytic approaches to examine the associations between SM use and drinking among emerging adults (Ilakkuvan et al., 2019; Russell et al., 2022).¹ However, these studies were limited in that they identified groups of SM users solely on participants' general use of SM platforms. Ilakkuvan and colleagues' (2019) profiles were comprised only of the frequency of using different SM platforms while Russell and colleagues' (2022) profiles were comprised of frequency of using SM platforms and minutes spent on each platform per use occasion. Further, both studies were cross-sectional and neither utilized important markers of alcohol-related risk on SM such as alcohol cognitions (e.g., descriptive and injunctive norms; pro-alcohol beliefs; Erevik et al., 2017; LaBrie et al., 2021c; Miller et al., 2014; Steers et al., 2019) to validate group membership. Understanding how general and alcohol-related SM behaviors together associate with alcohol risk among matriculating college students is important

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).

as applying a comprehensive person-centered approach to the SM domain may better inform efforts aimed at preventing or reducing heavy drinking on college campuses among high-risk groups (e.g., incoming first-year students; Barnett et al., 2014; Boyle et al., 2016; Del Boca et al., 2004; Hultgren et al., 2019; National Institute on Alcohol Abuse and Alcoholism, 2020).

1.1. Current Study

The current study used LPA to identify subpopulations of SM users based on a combination of general and alcohol-related SM behaviors. General SM use indicators reflected frequency of checking, time spent on, and frequency of posting to Instagram, Facebook, and Snapchat as well as Fintstagram account ownership. Alcohol-related SM use indicators reflected posting about alcohol use, partying, and marijuana use, a substance used frequently by heavy drinkers (McCabe et al., 2021) and in heavy drinking situations (Lipperman-Kreda et al., 2018). We then examined whether alcohol use, consequences, and alcohol cognitions predicted class membership, and whether the identified subpopulations of SM users differed based on drinking and consequences during the first year of college. Based on the research described thus far, we expected to find SM user subpopulations that would reflect different degrees of general and alcohol-specific SM use. These SM use profiles were also expected to be associated with established predictors of risky drinking during the transition (alcohol use, drinking norms, pro-alcohol beliefs) and increases in alcohol use and consequences at the end of the first year, with greater risk present in SM user profiles characterized by more SM use, both general and alcohol-related.

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). The baseline survey took place in July/August (T1), and the follow-up survey took place six months later in April (T2). Participants were paid \$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

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. Descriptive statistics for all indicators are included in Table 1.

Table 1. Descriptive statistics for indicators included in LPA model.

Indicators	Scale	Min.	Max.	<i>M(SD)</i>
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.	<i>M(SD)</i>	
Typical weekly drinking (T1)	0	18	2.99(4.82)	
Typical weekly drinking (T2)	0	35	8.75(9.04)	
Negative consequences (T2)	10	50	12.54(4.22)	
Descriptive drinking norms (T1)	0	32	10.80(6.97)	
Injunctive drinking norms (T1)	1	7	4.14(1.19)	
Pro-alcohol beliefs (T1)	1.00	4.20	2.43(0.60)	

2.3.2. Validity Measures

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

2.3.2.1. Typical Weekly Drinking (T1 and T2)

The Daily Drinking Questionnaire (DDQ; 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. One drink was defined as 12 oz. of regular 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 T2.

2.3.2.2. Negative Consequences (T2)

Participants completed 10 items from the Brief Young Adult Alcohol Consequences Questionnaire (B-YAACQ; Kahler et al., 2005) at T2 to assess negative alcohol consequences in the past month. Response options for each item ranged from 1 (Never) to 5 (10 or more times). Answers were summed to calculate a negative consequences score ($\alpha=.90$).

2.3.2.3. Descriptive Drinking Norms (T1)

Participants completed the Drinking Norms Rating Form (DNRF; Baer et al., 1991) as a measure of descriptive drinking norms. The DNRF 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. The total number of perceived drinks per week were summed to create a measure of descriptive drinking norms.

2.3.2.4. Injunctive Drinking Norms (T1)

Injunctive 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 ($\alpha=.88$).

2.3.2.5. Pro-Alcohol Beliefs (T1)

Pro-alcohol beliefs were measured by the College Life Alcohol Salience Scale (CLASS; Osberg et al., 2010). These 15 questions assessed how much one believes alcohol is a part of the college experience. Participants were asked to indicate their agreement with each statement using a scale from 1 (Strongly disagree) to 5 (Strongly agree). All items were then summed ($\alpha=.81$).

2.4. Analytic Strategy

LPA was conducted in Mplus version 8.4 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 and 1 dichotomous indicator (Table 1). Four 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, multinomial logistic regression was conducted using the R3Step in Mplus (Asparouhov & Muthén, 2014) to examine hypothesized concurrent predictors of class membership (i.e., typical weekly drinking, descriptive and injunctive drinking norms, and pro-alcohol beliefs). Lastly, the BCH method (Bakk & Vermunt, 2015; Bolck et al., 2004; Vermunt, 2010) was used to examine profiles as predictors of typical weekly drinking and consequences, controlling for baseline typical weekly drinking and birth sex.

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 (i.e., indicated anything

other than “never” posted about each topic). 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 small ($<5\%$; see Lanza & Collins, 2008) (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 more than 50% likely to have Finstagram accounts.

Table 2. Three-profile model – means (continuous indicators) and probability (Finstagram).

	Three Profile Model		
	1	2	3
	LGU+LAP	HGU+LAP	HGU+HAP
Class counts and Proportions - <i>n</i>(%)	32(10.0%)	241(75.4%)	46(14.6%)
Indicator	<i>Mean</i>	<i>Mean</i>	<i>Mean</i>
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
	<i>Probability</i>	<i>Probability</i>	<i>Probability</i>
Do you have a Finstagram?	No	1.000	0.679
	Yes	0.000	0.321

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.

3.2. Predictors of Class Membership

Typical weekly drinking, drinking norms, and beliefs were examined as predictors of class membership. Results revealed that greater typical weekly drinking ($OR=1.13$; 95% CI [1.06, 1.21]) and higher scores on alcohol beliefs ($OR=3.63$; 95% CI [1.75, 7.52]) were associated with greater odds of being in HGU+HAP than HGU+LAP and higher injunctive norms was associated with greater odds of being a member of HGU+HAP relative to LGU+LAP ($OR=1.96$; 95% CI [1.05, 3.69]). See Supplemental Table 3 for non-significant effects.

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

As illustrated in Table 3, members of the HGU+HAP group reported significantly more drinks consumed per week and more consequences at T2 relative to HGU+LAP and LGU+LAP, even when controlling for T1 drinking and birth sex. Results also revealed that the HGU+LAP group reported significantly more drinks per week at T2 compared to LGU+LAP, but they did not significantly differ on consequences.

Table 3. Profiles predicting distal typical weekly drinking and consequences (separate models).

Typical Weekly Drinking (Follow-up)				
	<i>b</i> (SE)	<i>p</i> -value	<i>b</i> (SE)	<i>p</i> -value
LGU+LAP	<i>ref</i>	<i>ref</i>	-3.63(1.77)	.040
HGU+LAP	3.63(1.77)	.040	<i>ref</i>	<i>ref</i>
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 (Follow-up)				
	<i>b</i> (SE)	<i>p</i> -value	<i>b</i> (SE)	<i>p</i> -value
LGU+LAP	<i>ref</i>	<i>ref</i>	-1.14(0.86)	.183
HGU+LAP	1.14(0.86)	.183	<i>ref</i>	<i>ref</i>
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

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.

4. Discussion

LPA was used to identify subpopulations of SM users based on general and alcohol-specific SM behaviors during the transition into college that differed in alcohol-related risk during the first year. Findings revealed three subpopulations of SM users (LGU+LAP, HGU+LAP, and HGU+HAP; approximately 10%, 75%, and 15% of the sample, respectively),

one of which was found to be associated with greater alcohol-related risk: HGU+HAP.

Membership in the HGU+HAP group was associated with pre-college drinking, injunctive drinking norms, and alcohol beliefs, providing additional support for the notion that members of this group are likely to be high-risk drinkers during the transition into college (e.g., Neighbors et al., 2007; Osberg et al., 2011; Stappenbeck et al., 2010). As expected, the high-risk HGU+HAP group was characterized by high use of Snapchat (e.g., Boyle et al., 2016; Ceballos et al., 2018; Foster et al., 2020), greater odds of having a Finstagram (LaBrie et al., 2021b), and posting more content to SM sites about alcohol and other related behaviors (D'Angelo & Moreno, 2019; Rodriguez et al., 2016; Westgate et al., 2014). The fact that the HGU+HAP group reported greater drinking and consequences than the HGU+LAP group suggests that blanket declarations about heavy SM use in general as a risk factor for drinking can be misleading, and more comprehensive analyses of SM and alcohol risk, such as those provided in the current study, are warranted.

Our findings corroborate previous research that explored the relationship between SM use and drinking using LPA (Russell et al., 2022). The profiles identified in this study 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, using alcohol cognitions to validate group membership, and demonstrating that the profiles can longitudinally predict changes in drinking and consequences during a period linked to the development of risky drinking trajectories (i.e., the transition to college; Derefinko et al., 2016). The significant differences in both alcohol use and consequences observed in this study between the groups differentiated by their alcohol-related SM behaviors (HGU+LAP and

HGU+HAP) demonstrates that these behaviors are worthwhile to study using person-centered approaches and may increase the fidelity of profile membership and associations with drinking risk beyond what is possible when using general SM behaviors only.

An unexpected finding of this study was that descriptive drinking norms did not predict membership in the HGU+HAP group. Previous studies have shown descriptive norms to be positively associated with time spent on SM (Brunelle & Hopley, 2017) and posting alcohol-related content to SM (Erevik et al., 2017; Miller et al., 2014), both of which were reported most frequently by the HGU+HAP group. A plausible explanation for this non-significant finding is that these norms were assessed prior to college matriculation, rather than after (e.g., Brunelle & Hopley, 2017; Erevik et al., 2017; Miller et al., 2014). It is also plausible that the non-significant association between SM use behaviors and descriptive drinking norms may be due to this study examining a combination of SM behaviors rather than a single behavior, or that prior to entering college, students of all risk types have similar perceived images of how much college students drink. Indeed, future studies are needed to verify whether these explanations are correct.

4.1. Implications

The present findings are important to the study of the effects of SM behaviors on drinking and alcohol-related interventions. First off, findings suggest that incorporating alcohol-specific SM behaviors into person-centered approaches such as LPA to identify patterns of SM use is worthwhile to more accurately examine what SM behaviors are most closely associated with risky drinking. Knowledge of these real-world patterns can help to provide specific guidance to prevention efforts aimed at mitigating SM-influenced drinking risks (Boyle et al., 2021; LaBrie et al., 2021c). For instance, based on the current findings, interventions targeting risky drinking via advertisements on SM may be more likely to reach an at-risk population on

Snapchat and Instagram than on Facebook. However, the decision to use a person-centered approach over variable-centered ones should always be based on theoretical models (Collins, 2006).

4.2. Limitations and Future Directions

Despite the many strengths of this study (e.g., longitudinal design, examination of multiple SM platforms), there are a few limitations. First, the current sample was from one mid-sized private university on the West Coast. However, the sample was demographically diverse, and our findings are in line with previous work that used a different sample of young adults both attending and not attending college (Russell et al., 2022), which provides some confidence that the subpopulations identified here will replicate in future studies. A second limitation is that participants were not asked which platforms they posted alcohol-related content to. Knowing the frequency of posting alcohol-related content to each platform may have revealed additional profiles or ones that could better explain the observed associations between SM use and risky drinking. Given this, researchers that wish to extend this line of work should assess alcohol-related posting on each platform.

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 more time spent using Snapchat, more frequently posting alcohol-related content, and having a Finstagram are characteristics of heavier drinkers. 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. Given this, we recommend that researchers studying

SM behaviors take a more holistic approach to better understand its role and impact on college drinking.

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Supplemental Table 1. Fit statistics for the first seven LPA models.

Number of Profiles	AIC	BIC	-LL	Entropy	LRT	BLRT
1	19784.00	19878.13	9867.00	---	---	---
2	19356.32	19503.16	9638.16	0.985	0.000	<0.0001
3	18943.37	19142.93	9418.69	0.979	0.000	<0.0001
4	18624.46	18876.73	9245.23	0.981	0.312	<0.0001
5	18909.13	19214.11	9373.56	0.988	0.862	1.000
6	18623.30	18981.00	9216.65	0.894	0.551	1.000
7	18465.61	18876.02	9123.81	0.988	0.703	1.000

Supplemental Table 2. Class counts and proportions for LPA models (2 to 7 profiles).

Class Counts and Proportions							
<i>N</i> = 319	1	2	3	4	5	6	7
Number of Profiles	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)
2	34(10.7%)	285(89.3%)	---	---	---	---	---
3	32(10.0%)	241(75.5%)	46(14.4%)	---	---	---	---
4	32(10.0%)	232(72.7%)	41(12.9%)	14(4.4%)	---	---	---
5	22(6.9%)	14(4.4%)	263(82.4%)	18(5.6%)	2(0.6%)	---	---
6	20(6.3%)	16(5.0%)	117(36.7%)	138(43.3%)	19(6.0%)	9(2.8%)	---
7	22(6.9%)	14(4.4%)	242(75.9%)	17(5.3%)	17(5.3%)	5(1.6%)	2(0.6%)

Note. Proportions < 5% in bold.

Supplemental Table 3. Predicting class membership (cross-sectional).

	Typical Weekly Drinking		Descriptive Drinking Norms		Injunctive Drinking Norms		Alcohol Beliefs	
Profile	<i>OR</i>	<i>95% CI</i>	<i>OR</i>	<i>95% CI</i>	<i>OR</i>	<i>95% CI</i>	<i>OR</i>	<i>95% CI</i>
1. LGU+LAP	<i>ref</i>		<i>ref</i>		<i>ref</i>		<i>ref</i>	
2. HGU+LAP	1.01	[0.84, 1.23]	1.04	[0.95, 1.12]	1.41	[0.85, 2.35]	1.73	[0.18, 16.71]
3. HGU+HAP	1.14	[0.94, 1.12]	1.01	[0.91, 1.12]	1.96	[1.05, 3.69]	6.28	[0.56, 69.81]
	<i>OR</i>	<i>95% CI</i>	<i>OR</i>	<i>95% CI</i>	<i>OR</i>	<i>95% CI</i>	<i>OR</i>	<i>95% CI</i>
1. LGU+LAP	0.99	[0.82, 1.20]	0.97	[0.89, 1.05]	0.71	[0.42, 1.18]	0.58	[0.06, 5.59]
2. HGU+LAP	<i>ref</i>		<i>ref</i>		<i>ref</i>		<i>ref</i>	
3. HGU+HAP	1.13	[1.06, 1.21]	0.98	[0.92, 1.03]	1.39	[0.94, 2.05]	3.63	[1.75, 7.52]

Note. Bolded OR and 95% CI are significant at $p < .05$; Low General SM Use + Low Alcohol-Related Posting = LGU+LAP (Profile 1); High General SM Use + Low Alcohol-Related Posting = HGU+LAP (Profile 2); High General SM Use + High Alcohol-Related Posting = HGU+HAP (Profile 3).