"What was the vibe you were going for?" SAM Behaviors and Socialization During the COVID-19 Pandemic, a Qualitative Approach

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ABSTRACT

Introduction: Marijuana use is at historic highs amongst college-aged adults, who are more likely to engage in simultaneous alcohol and marijuana use (SAM) than other age cohorts. For college students, the COVID-19 pandemic is a unique transitory phenomenon that led to isolation, as well as changes in socialization, academic environments, and substance use. This exploratory qualitative study aims to understand SAM socialization and motivation behaviors among college students. **Methods**: Semi-structured qualitative interviews (N=32) were conducted across the United States from January 2021-April 2021via Zoom. Interviews were then transcribed, then a thematic analysis was conducted in Atlas.ti. **Results**: The sample was primarily college juniors (m_{age}=21). Since the pandemic, half of the participants increased SAM, whereas the other half decreased SAM. SAM was reported in different categories including primarily with friends, but, much less with partners and with roommates. More than half of the sample indicated that they used SAM alone. Motivations to engage in SAM included relaxing, socializing, offsetting stressors specific to the COVID-19 pandemic, and relieving general stress, anxiety and boredom. **Conclusion**: The COVID-19 pandemic impacted college students' substance use in interesting ways. Understanding the behaviors of SAM in the context of the COVID-19 pandemic is crucial due to the legalization of marijuana in many states. This understanding has significant implications for prevention strategies and potential policy interventions. Our study yielded findings regarding the impact of socialization on SAM. We discovered that not only does socialization affect SAM, but the specific contexts and motivations behind these behaviors also play a crucial role, which adds to our developing understanding of SAM behavior.

Key words: = SAM; college students; alcohol; marijuana; socialization; COVID-19

Alcohol and marijuana use is common among young adults, particularly college students (American College Health Association, 2018; Fleming et al., 2021; SAMSHA, 2017). Substance use rates in college students have changed during the COVID-19 pandemic. For alcohol, drinking behaviors were found to have increased during the early stages of the pandemic (March-July 2020; Pakdaman & Clapp, 2021). Pandemic specific studies on marijuana use, however, had mixed

findings, with reports of both increases (Fendrich et al., 2021; Manthey et al., 2021; Papp & Kouros, 2021) and decreases (Graupensperger et al., 2021) The combination of alcohol and marijuana use at the same time where there is an overlap in effects is known as simultaneous alcohol and marijuana use (SAM) and has historically increased (Lee, 2022). However, understanding SAM and the contexts of college students during the pandemic is largely understudied, and information is not

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provided on pandemic rates from large, national databases.

Risks related to drinking among college students are well-documented (Crum & Pratt, 2001; NIAAA, 2019) and vary in severity from hangovers to injury, legal troubles and even death. Outcomes related to marijuana use among this population include social-interpersonal consequences such as saying or doing things that are embarrassing (Pearson et al., 2017) to more serious reasons such as affecting brain health, mental health, vehicle driving and reaction times, and coordination (SAMSHA, 2022). For SAM specifically, college student reported risks included drinking more alcohol when using marijuana (when compared to drinking alcohol alone), as well as more harms on the days where both substance are used versus one or the other, and engaging in risky behaviors (NIDA, 2021). These risky behaviors include unsafe driving (Duckworth & Lee, 2019; Terry-McElrath et al., 2014) and mental health outcomes (Patrick et al., 2020), however, other risks according to a scoping review published in 2022 are largely understudied (Lee, 2022).

There are different contexts (i.e., motivations for use) in which college students may engage in SAM. For example, some common SAM socialization motives include coping and reducing negative moods (Conway et al., 2020; Patrick et al., 2018). More specifically, participants across studies examining college students found motives for SAM included the desire to "calm down" and "cope with anxiety" (Conway et al., 2020; Patrick et al., 2018). Previous research has found that a correlation between coping, calming, and SAM is demonstrated, such that individuals with a history of alcohol and marijuana use are more likely to engage in SAM in the future (Patterson et al., 2020). For example, social acceptability (i.e., if peers engage in use) has a significant impact on participation in alcohol consumption, marijuana use and SAM (Beck et al., 2009; Conway et al., 2020; Cooper, 1994). Drinking during college transition is greatly influenced by peer drinking norms (Park et al., 2009). Alcohol consumption during and after college is impacted by peer drinking, friend socialization and social reinforcement, in which students may encourage drinking through their interactions (Bartholow et al., 2003; Cooper, 1994; Halim et al., 2012; Park et al., 2009). Likewise, marijuana use is largely driven by social facilitation and acceptance among college students (Beck et al., 2009). It follows that SAM engagement is influenced, at least in part, by the desire to meet peer expectations and the perception of student norms (Conway et al., 2020; Linden-Carmichael & Allen, 2021).

In addition to peer norms and relationships, another context of SAM is that in the past it has not been a heavily studied indicator of future SAM (Linden-Carmichael et al., 2019). In a 2019 study that examined 1,035 participants, 84.6% of the persons who engaged in SAM were single and 72.3% of them were enrolled in college (Linden-Carmichael et al., 2019). One study found that having a romantic partner who drinks can have an impact on higher alcohol consumption in emerging adults (Bartel et al., 2020). On the other hand, it was found that a lack of a significant other was associated with greater alcohol and marijuana use, particularly among persons aged 19-20 (Fleming et al., 2010). The same publication also found that for those in relationships, the more serious the romantic bond was, the more protective factors the couple had against the use of alcohol and marijuana (Fleming et al., 2010).

The current COVID-19 pandemic has led to a global increase in engagement in substances to alleviate feelings of uncertainty. In 2020, alcohol sales and consumption increased throughout the United States (BACtrack, 2020; Bremner, 2020; Emerson, 2020; Grossman et al., 2020). Additionally, marijuana use in the United States increased during COVID-19 (Brenneke et al., 2022; Schulenberg et al., 2020). Throughout the first few months of the pandemic, a survey of 1,761 U.S. adults analyzed from the Understanding America Study revealed spikes in COVID-19-related marijuana intake (Brenneke et al., 2022). Further, according to the National Survey Results on Drug Use 1975-2020, marijuana utilization rose to 44% for college students and 43% for those not enrolled in higher education in 2020 when compared to previous years (Schulenberg et al., 2020). Though the data collected during the pandemic has examined alcohol and marijuana statistics separately, information on SAM prevalence is unavailable from national databases. For instance, nationally administered surveys, like Monitoring the Future and SAMHSA's annual substance use indicator report did not include SAM measures specific to

the current COVID-19 pandemic (SAMSHA, 2022; Schulenberg et al., 2020).

Though current literature examines some elements leading to SAM among college students, little is known concerning how social motives contributed to SAM within the COVID-19 context. Past literature recommends exploring specific motives and relevant contexts for the situation to inform SAM interventions (Patrick et al., 2018). Thus, our study aims to learn how socialization motivations, referred to in our study questions as "vibes," (i.e., defined by Merriam-Webster as "distinctive or quality capable of being sensed;" Merriam Webster, 2022), a term used frequently among college students, was for college students during the pandemic. We aim to explore students' SAM inductively by conducting qualitative interviews (Bingham et al., 2022). We aim to explore what can drive these behaviors by assessing socialization, environmental contexts and motives during the pandemic.

METHODS

Participant Recruitment and Study Procedures

Participants were recruited (N=32) for semi-structured interviews between November 2020-April 2021. During this time, in the US, COVID-19 case rates ranged from over 400,000 to 1,000,000, and deaths rates ranged from 4,000 to 14,000 individuals (World Health Organization, 2023). Recruitment took place on various social media and community platforms, such as Instagram, Facebook, and Craigslist. Eligibility criteria included: (1) being at least 21 years of age; (2) a user of both alcohol and marijuana simultaneously; and (3) actively enrolled in college in the US. Participants were scattered across the US, as the pandemic called for many students to move back to their family homes due to university pandemic-related restrictions. All participants were screened for eligibility via email by providing their student ID and emailing from a university or college-issued email address. After signing the informed consent form, participants were invited to a scheduled 25-minute Zoom interview where they were asked about their alcohol and marijuana behaviors separately, and then their SAM behaviors. Participants received $25 in compensation at the end of both the online survey and Zoom interview. This study was approved by the University of Southern California Institutional Review Board [#UP-20-00629].

Semi-Structured Interviews

Two research assistants conducted the interviews (N=32) via the Zoom video conferencing application. Participants were asked about their alcohol, marijuana and SAM behaviors during the pandemic. The interviewers first asked about alcohol behaviors, then marijuana behaviors. Alcohol-related questions included the number of drinks consumed, which setting the drinks were consumed in, what kind of alcohol beverages they preferred, and if drinks were consumed alone or around others (i.e., with another person, in a small group environment, at a party, or in a bar). For marijuana, participants were asked about their smoking (i.e., blunts, joints, bowls, or vapes) and/or ingestion preferences (i.e., edibles, such as baked goods, candies, or tinctures). Similar to the alcohol-related questions, participants were asked how many "hits" of the marijuana or "milligrams" of edibles they consumed, if they typically were alone or with others while using marijuana, and how they obtained the marijuana (i.e., it was given to them by a friend; they bought it at a dispensary or baked or rolled their own marijuana. Lastly, SAM questions included asking about alcohol and marijuana behaviors as detailed above, with the addition of asking what the mood or "vibe" the participant was hoping to achieve by engaging in SAM.

Data Analysis

The audio recordings of the Zoom interviews were sent to a transcription service and then analyzed by 2 separate coders on the research team using Atlas.ti (ATLAS.Ti Scientific Software Development GmbH [ATLAS.Ti 22 Mac], 2022). Thematic analysis was then conducted until data saturation was found. A codebook was created based on several discussions amongst the research team. The first author and senior author agreed with the codes. The agreement for the codes used in the present analysis was high (Golafshani, 2003).

Thematic Analysis

After conducting thematic analysis, the first author and experienced research assistants read through the coded data relevant to the study's

research questions, created themes and subthemes, and then compared the different themes that emerged within the independently generated codes. The team met to discuss the topics, and no disagreements were found (Kappa intercoder rating of at least 0.85) (Golafshani, 2003), so a singular set of topics and subthemes were used to analyze the study. The themes that emerged were SAM behaviors during the COVID-19 pandemic (1) SAM with friends; (2) SAM with partners; (3) SAM with roommates; and (4) SAM alone. Motivation themes for SAM included (1) to relax; (2) to socialize, (3) to offset the current COVID-19 pandemic stressors, and (4) to relieve general stressors, anxiety and boredom.

RESULTS

Participant Characteristics and SAM Products Most Frequently Used

The majority of participants were juniors in college (m_{age}=21). The geographic distribution of participants was spread out, with 58% from the West Coast, 23% from the East Coast, 16% from the South, and 3% Midwest. Cannabis products included brownies, flower/bud, vape pens, and joints.

SAM Interview Data

Since the pandemic began, half of the participants said they decreased their SAM, while the other half increased their SAM usage. SAM was split into three different categories with the majority reporting use with friends, and nearly a third reporting use with partners and roommates. However, slightly less than half of the sample indicated that they used SAM alone. Motivations for SAM included to relax, to socialize, to offset the current COVID-19 pandemic, and to relieve general stress, anxiety and boredom.

SAM with Friends. According to the responses provided by the majority of participants, they engaged in SAM primarily when they were in the company of their friends who they did not co-habitat with. This included situations such as one-on-one interactions, being in a small group "bubble" adhering to COVID-19 precautions, or in a kick-back party setting. Participants indicated that engaging in SAM was normal, and something they were accustomed to doing when socializing

with friends during the pandemic. An interesting finding was that participants engaged in SAM to offset their busy college schedules, and bond with their closest friends: *"I'd say, it's more of a hangout with close friends, because we all really know each other in the group. And because of that, we're all pretty close to each other. And usually, whenever we meet, we all have pretty busy schedules, so we don't really get to meet each other often"* (Male, 21 years old). Another participant indicated that every time they went out to socialize with friends, they would participate in SAM.

SAM with Partners. Participants discussed if they have engaged in SAM with their partners. One participant alluded to their partner introducing them to marijuana whereas others shared that the experience was included as part of daily routine. SAM with intimate partners was found to be an activity where partners first engaged in marijuana use with each other, and then had friends join them to consume alcohol. However, another college student shared that she engages in SAM with her husband around dinner time to experience the effects of both substances: *"It would usually be at my house with my husband and watching TV or something and have a glass of wine with dinner. And then, maybe use my vape, so I'll get both effects"* (Female, 24 years old).

SAM with Roommates. A third of participants indicated that SAM was prevalent in their home environment when living with roommates. In interviews, it was shared that participants engaged in SAM with their roommates as a way to be safe with COVID-19 social distancing precautions. One 30-year-old male participant shared that his roommates participating in SAM are the "bad influences."

SAM alone. Some participants preferred to engage in SAM alone, but some did specify that this was due to the inability to socialize during the COVID-19 social isolation restrictions. A 21-year-old male participant shared that after his college closed on-campus housing services, and he had to move back to his family, he did have a lot going on outside of his college classes and was not able to see his friends in person, thus he began to engage in SAM every day for the first month and a half of lockdown. Interestingly, this participant indicated that their use went down when the restrictions subsided.

Alternatively, some participants indicated that they engaged in SAM alone to offset the effects of either marijuana or alcohol and that they preferred to do this alone, rather than in a social setting. However, one participant indicated that they engaged in SAM alone because the effects are more relaxing, whereas in a social setting, the effects induce more anxiety: *"I like to use it alone because it makes me just feel more relaxed. Whereas, if I am smoking with a group of other people, it actually makes me more anxious. So I feel like typically just doing it alone is more like when I'm trying to calm down or get ready for bed, or something like that"* (Female, 22 years old).

SAM Motivations

Relaxation. Participant interviews indicated that relaxation was a motivating factor to engage in SAM, especially in high-stress moments of college life, such as academic examinations and other life stressors. Other participants indicated that it was positive for them to engage in SAM and have shared moments with their friends, and a chance to wind down: *"I think it's just to wind down. Sometimes, I used to go to the park and just lay in a hammock with my friends"* (Female, 21 years old).

Socialization. SAM was normative among participants and often a social event: *"Normally, everyone is doing it. There's no one who's left out, sort of"* (Female, 21 years old). SAM in social settings was further explained by a male participant, who shared that he starts off usually drinking alcohol, and once he has had a few drinks, he feels more comfortable with engaging in "what everyone else is doing", which includes using a "dab pen or taking hits from a bong." Additionally, some college students indicated that most people in their lives engage in SAM, and that does influence their own SAM behavior: *"All of the above, partner, friends, housemates. Pretty much every single person, besides my family, in my life [engages in SAM]"* (Female, 21 years old).

Offset the COVID-19 Pandemic. Some participants indicated that SAM was exclusively motivated by the desire to offset negative feelings associated with the COVID-19 pandemic. A participant indicated that prior to the pandemic, she was generally happy, however, during the pandemic, she feels "dead inside." Using SAM as a coping mechanism is something that came up with several participants. One participant explained that SAM is a method to cope with the pandemic and to get to sleep: *"I try my best to be mindful of my drug and alcohol use, to not make it an escape or coping strategy. That's because it could be unhelpful. But, to be honest, it's just... I just need to wind down most times and I'm exhausted most of the time. So yeah, in the pandemic, absolutely, I think it has definitely become more of an outlet for coping, than prior to"* (Female, 29 years old).

On the other hand, a participant said they engaged in SAM more so to offset the stress of academics while taking care of things around her house or to have fun with her partner at home while social venues were closed. Lastly, a participant shared that SAM pre-pandemic was exclusively for socializing, whereas now she engages in SAM to relax, sometimes unsuccessfully, but that does not stop her from trying to use SAM: *"Yeah. I think when I used to do it, it would be exclusively for social reasons. And now, because that's not a thing, it tends to just be an attempt at distressing and that doesn't necessarily always work. But I feel like every other week or so, I come back and try it again"* (Female, 24 years old).

Offset general stress and anxiety and boredom. However, some participants indicated that they engaged in SAM as a means of coping for general stress and anxiety, and to offset boredom, which they indicated was unrelated to the COVID-19 pandemic. Academics were brought up by participants as a general stressor that was felt amongst college students: *"I guess it's a feeling of more like, sort of stress and anxiety, especially as finals come. All of us are done with our finals and anxious about our grades. Some of us have one final left in a couple of days and are really stressed out about it. So, it's mostly, I guess it would be a way to like combat the stressful atmosphere of college"* (Male, 21 years old). Some participants indicated that they used SAM to feel "cooler" and make household tasks more enjoyable such as "*doing the dishes...or go walk the dog*" (Male, 23 years old).

Offset marijuana or alcohol by itself. There are some side effects associated, respectively, with marijuana or alcohol use. Thus, some participants used either substance as a means to offset the side effects of the other. This included physiological

and affective mood responses. However, it was found among participants that SAM was a means of offsetting the effects of marijuana with alcohol. *"I'd say that when I only use marijuana by itself, I do feel kind of like an anxiety side effect, if you want to call it. Or just some sort of nervousness, almost being fidgety. Whereas, I find that when I use both, they kind of, I don't want to say they cancel each other out. But some of those more negative side effects of the marijuana that I feel tend to be lessened, I guess, presumably through the alcohol use"* (Female, 22 years old).

DISCUSSION

We speculate that examining SAM engagement in college students during COVID-19 from a socialization perspective (i.e., motivations for use) has been understudied for multiple reasons. However, a few studies have gathered information on SAM socialization motives prior to COVID-19 (Conway et al., 2020; Linden-Carmichael et al., 2019; Midanik et al., 2007; Patrick et al., 2018; Patterson et al., 2020). Our study aimed to fill the relevant gap by exploring SAM social motivations among college students during the COVID-19 coronavirus pandemic. In our interviews, our participants indicated that half increased their participation in SAM, while the other half reduced it. We speculate that the observed increase in SAM during the COVID-19 pandemic can be attributed to the heightened levels of stress experienced during this time, particularly among college students who faced various challenges such as transitioning to online learning, campus shutdowns and financial strains. These stressors may have contributed to an increase in SAM behaviors as a coping mechanism. On the other hand, we speculate that the decrease in SAM during the pandemic could be influenced by concerns related to the ingestion of marijuana through smoking and the respiratory implications associated with COVID-19. Given the respiratory risks associated with the virus, individuals may have been more cautious about engaging in SAM behaviors that involve smoking. Additionally, the relocation of college students from their dormitories to their family homes during the pandemic may have played a role in the decrease of SAM. The presence of family members in the home environment may have deterred individuals from engaging in SAM

behaviors, considering the potential discomfort or disapproval that may arise from indulging in such activities in the presence of their family of origin.

Follow-up questions regarding change in use brought to light several themes. Many socialization motives emerged for those that engaged in SAM during COVID-19. However, none were specific to only participants that increased or decreased utilization. One of the main themes participants reported was to offset COVID-19. Reasoning within this item included coping with lockdown/quarantine, lack of social engagement, stress, and anxiety. These motivations are reflected in existing literature determining COVID-19 incentives to use alcohol or marijuana by itself (Bartel et al., 2020; Graupensperger et al., 2021; Jackson et al., 2021; Sarangi & Eskander, 2021). While our study identified a correlation between SAM behaviors and the challenging circumstances brought about by the pandemic, it is important to delve deeper into understanding whether individuals specifically turned to alcohol or marijuana to cope with these factors individually or in combination.

The other SAM motivations we found were not specific to COVID-19 stressors. However, they occurred during the COVID-19 pandemic. The SAM motivations included to socialize, relax, and relieve general stress anxiety and offset boredom. Our participants described the social norms and peer pressure that their friends, roommates and peers supported. These results support pre-COVID-19 studies regarding social reinforcement (Conway et al., 2020; Linden-Carmichael et al., 2019). The relaxation and relief of stress and anxiety incentives also strengthen existing research from before COVID-19, because they overlap with the prevalent reports for calming and coping (Conway et al., 2020; Patrick et al., 2018). Overall, our observations regarding socialization, relaxation, and coping with general stress and anxiety demonstrate important consistency between SAM social motives from before and during COVID-19.

Effects that were motives in previous research included social norms, coping, and calming (Conway et al., 2020; Patrick et al., 2018). Questions about increasing pleasant experiences and reducing negative ones from using alcohol or marijuana by themselves were grouped into the same motivational category (Conway et al., 2020; Patrick et al., 2018). However, we separated them

in the thematic analysis because we theorized that the distinction was important. Positive effects did not emerge as a significant factor in our results. It was a popular response to offset the negative effects of alcohol or marijuana use on their own. This differentiation can provide more direction as interventions adapt to SAM behaviors during COVID-19.

We investigated SAM with friends and roommates. It was noted that peers or friends influenced SAM engagement before COVID-19 (Bartholow et al., 2003; Borsari & Carey, 2006; Cooper, 1994; Halim et al., 2012; Park et al., 2009). Our finding that friends were the most common link for SAM reinforces their importance during COVID-19. Linden-Carmichael and his colleagues (2019) found who users lived with, but the distinction between roommates is less studied. Based on our results, we suspect that quarantining with roommates interacted with the SAM socialization motives within our thematic category, offsetting COVID-19. The associated motivations in this category included coping with lockdown/quarantine, boredom, stress, and anxiety.

Furthermore, our study looked into college students using with partners and alone. More participants engaged in SAM alone than with partners. However, in our results, having a significant other acted as encouragement to utilize SAM, rather than serving as a protective factor. Our data support statistics before COVID-19 in which people use more alone than with partners (Linden-Carmichael et al., 2019; Midanik et al., 2007). On the other hand, when using marijuana alone, partners can be a protective factor (Fleming et al., 2010). While previous research has indicated that having a supportive partner can act as a protective factor against marijuana, our study indicates that this may not be uniformly applicable to SAM. Given the qualitative nature of this study, we were able to understand SAM motives and socialization by hearing from college students directly about their experiences during COVID-19. Understanding the SAM behaviors that were described during this study informs future directions as it provides a means to better understand why college students engage in both substances simultaneously and how they are impacted by their peers. Furthermore, this study adds to the growing COVID-19 literature by providing insight on college student SAM behaviors.

Limitations

In light of our findings, some limitations were noted. Recall bias is a limitation to consider, as participants may not accurately recall their SAM during the pandemic due to the evolving nature of the virus. Social desirability bias is always a concern when discussing substance use. That is, participants may not always feel comfortable or be honest with a researcher when discussing substance use behaviors. However, based on our data, this does not appear to be a factor in this study.

Conclusions

The topic of SAM and socialization has recently been heavily studied in college students. The current COVID-19 pandemic shifted behaviors for college students, due to many factors related to social distancing, uncertainty, and mental health implications. Thus, understanding SAM within this population is an important public health concern, especially because of the legalization of marijuana in many states. Future directions of post-pandemic behaviors would be beneficial to research in order to understand the aftermath of the pandemic. This research may benefit future directions regarding the preparation for pandemics and other scenarios in which college students may be influenced by SAM and socialization motives such as other current traumatic conditions (i.e., political unrest, bodily autonomy, racial injustices).

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