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More than just alcohol: Marijuana and illicit drug use at parties attended by 15–20 year olds

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Abstract

Background—Parties are a common setting for marijuana and illicit drug use among adolescents.

Objectives—This study examined the context of parties with alcohol, marijuana and illicit drug use attended by adolescents and young adults.

Methods—In 2016, an address-based sample of 1,764 15–20-year-olds in 24 U.S. communities participated in an online survey. Parties were categorized as alcohol-only (Alc-only), marijuana +alcohol (Mj+Alc), and illicit+marijuana+alcohol (ID+Mj+Alc) based on survey participants' observations and self-reported drug use at the last party attended. Multivariable logistic regression was used to identify correlates of substance use at parties.

Results—1,089 participants (61.7%) reported ever attending a party where alcohol was consumed. Of those, 60.1% reported that the last party they attended had Alc-only, 24.9% had Mj +Alc, and 10.0% had ID+Mj+Alc. Older participants were more likely to attend a party with Mj +Alc or ID+Mj+Alc. Participants whose mother had a college degree (compared to less than a college degree) were less likely to attend a party with ID+Mj+Alc. Parties with Mj+Alc and ID +Mj+Alc were larger and the majority of attendees were under 21. Parties with ID+Mj+Alc were more likely to be majority female compared to mixed gender. Parties with Mj+Alc were more likely to occur at someone else's home and be in states where medical and recreational marijuana use was legal.

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Conclusion—One-third of parties attended by 15–20-year-olds had marijuana and/or illicit drug use in addition to alcohol consumption. The identified risk factors of parties with marijuana and illicit drug use can be used to develop targeted prevention strategies.

Keywords

Alcohol; Marijuana; Illicit Drug; Prescription Drug; Context; Party; Legalization

1. Introduction

Substance use among adolescents and young adults frequently occurs in a social context (Clapp, Reed, Holmes, Lange, & Voas, 2006; McCabe, West, Veliz, Frank, & Boyd, 2014; Terry-McElrath, O'Malley, & Johnston, 2013). Parties are the most common location for alcohol, marijuana, and illicit drug use among high school seniors (McCabe et al., 2014). Among high school students who used substances, 93% of polysubstance users and 59% of marijuana users reported use at parties within the past year (McCabe et al., 2014), and approximately 23% of college students under 21 years of age have attended a party where illicit drugs were being used (Clapp et al., 2006).

Parties at which marijuana and illicit drugs are used may be especially troublesome for several reasons, including providing access to these substances to youth who might otherwise not use them, contributing to or reinforcing unhealthy norms about substance use, and first- or second-hand consequences associated with substance use. Peers are primary sources for marijuana and illicit drugs among adolescents and young adults (Harrison, Fulkerson, & Park, 2000; McCabe & Boyd, 2005; Wagenaar et al., 1993). As with alcohol (Harrison et al., 2000; Lipperman-Kreda, Finan, & Grube, 2018), parties may enable access to marijuana and illicit drugs to adolescents and young adults who may otherwise not seek out these substances. Additionally, exposure to marijuana and illicit drug use by peers at parties may result in increased perceptions of use by others, subsequently resulting in initiation, or increased use, of these substances (Patrick, Kloska, Vasilenko, & Lanza, 2016). Use of marijuana and/or illicit drugs at parties may increase the likelihood of experiencing an adverse consequence, especially if multiple substances are used simultaneously (Brière, Fallu, Descheneaux, & Janosz, 2011; Egan, Reboussin, Blocker, Wolfson, & Sutfin, 2012; McCabe, Cranford, Morales, & Young, 2006; Pennings, Leccese, & Wolff, 2002). Even if individuals choose not to use marijuana or illicit drugs themselves, they may be at risk for adverse consequences due to other party-attendees' substance use (e.g., physical or verbal fight, sexual assault, or victim of another crime) (Rhodes et al., 2009). Thus, it is important to have a better understanding of the prevalence of parties attended by adolescents and young adults where marijuana and illicit drug use is occurring and risk factors associated with party attendance, which could inform the development of potentially effective prevention strategies.

While literature suggests that marijuana and illicit drug use among adolescents and young adults occur in party settings (Clapp et al., 2006; McCabe, 2008; Terry-McElrath et al., 2013), less is known about the situational characteristics of parties where marijuana and illicit drug are consumed (e.g., party size; party location; and characteristics of the

attendees). Several studies on underage drinking parties suggests that larger party size is associated with high risk alcohol consumption (Lipperman-Kreda et al., 2018; Mayer, Forster, Murray, & Wagenaar, 1998; Senchak, Leonard, & Greene, 1998; Wagoner et al., 2013), especially when the majority of attendees are consuming alcohol (Cullum, O'Grady, Armeli, & Tennen, 2012). College students under 21 years of age are more likely than their older counterparts to report consuming alcohol at a house party than in a public setting (Clapp et al., 2006), and adolescents and young adults report consuming more alcohol in contexts with peers that are a similar age (Connolly, Casswell, Stewart, & Silva, 1992; Harford & Spiegler, 1983; Mayer et al., 1998). Also, adolescents and young adults of both sexes report consuming more alcohol at mixed-sex parties (Lipperman-Kreda et al., 2018; Senchak et al., 1998; Thrul & Kuntsche, 2015; Thrul, Labhart, & Kuntsche, 2017).

Marijuana use at parties may be influenced by the surrounding policy environment. Currently, in the United States, 30 states have legalized marijuana for medical purposes and 9 states allow the recreational use of marijuana (Sevigny, 2017). Legalization of medical and recreational marijuana sales and use has raised concerns about increased use due to increased access (Sevigny, 2017), normalization (Friese, Slater, Annechino, & Battle, 2016; Miech et al., 2015; Paschall, Grube, & Biglan, 2017; Sevigny, 2017), and decreased perceived risk (Cerdá et al., 2017; Keyes et al., 2016; Sevigny, 2017). The current literature shows mixed effects of marijuana legislation on adolescent marijuana use. While several studies found marijuana use among adolescents to be more prevalent in states where marijuana use is legal (Paschall et al., 2017; Stolzenberg, D'Alessio, & Dariano, 2016; Thurstone, Lieberman, & Schmiege, 2011; Wall et al., 2011), others did not find a relationship between marijuana legalization and use (Choo et al., 2014; Harper, Strumpf, & Kaufman, 2012; Hasin et al., 2015; Lynne-Landsman, Livingston, & Wagenaar, 2013; Sarvet et al., 2018) or decreases in marijuana use (Keyes et al., 2016). To date, no studies have examined the impact of the changing marijuana legalization climate on marijuana use in a party context.

The objective of this study was to examine the prevalence and context of marijuana and illicit drug use at house parties attended by adolescents and young adults. We hypothesized that parties with marijuana and illicit drugs may be larger than parties that do not involve these substances, be more likely to occur in the home and have mixed-sex and mostly same age attendees. Assuming that attendees are demographically similar to those who report use, adolescent and young adult attendees at parties with marijuana may be more likely to be male and of lower socioeconomic status (Miech et al., 2017; Schulenberg et al., 2017). Additionally, adolescent and young adult attendees of parties with illicit drug use may be more likely to be male and White or Hispanics (Miech et al., 2017; Schulenberg et al., 2017). We hypothesized that parties in states where medical or recreational marijuana was legalized would be more likely to have marijuana use.

2. Methods

2.1 Procedures

In 2016, we conducted an online survey of 15 to 20-year-olds residing in 24 communities in seven states participating in a prospective randomized community trial, *Evaluating*

Community-Driven Strategies to Prevent Underage Drinking Parties (Wolfson et al., 2017). The survey took approximately 15 to 20 minutes to complete. Individuals who completed the survey received an electronic $15 Amazon gift card following survey submission. The protocol was approved by the [institution de-identified for review] Institutional Review Board (IRB). A Certificate of Confidentiality was obtained from the National Institutes of Health in order to provide additional security for the participants.

2.2 Community Recruitment

Twenty-four cities in seven states (California, Colorado, Georgia, Indiana, Iowa, New Mexico, and New York) were recruited to participate in the community trial. Eligibility requirements included having a population between 25,000 and 300,000, a local law enforcement authority, and an active community substance abuse prevention coalition with leadership that was willing to participate in the trial. Additionally, cities could not have a social host ordinance or be located within a state with a state-level social host law at the time of recruitment.

2.3. Sample

An address-based sampling approach was utilized to invite 19,196 households in the 24 communities expected to have at least one 15 to 20-year-old resident to participate in the online survey (Dillman, 2007). An age-targeted list sample was provided by Marketing Systems Group. A total of 1,126 mailings with unique addresses were returned as undeliverable, 850 households reported that they were ineligible, 163 eligible households refused to participate, and 1,764 individuals completed the survey. It is often impossible to calculate a precise response rate for a survey that uses address-based sampling to generate the sample. This is because it is not known whether any given nonrespondent was ineligible, or if the individual was eligible and did not respond (AAPOR, 2016; also see Smith, 2009). Thus, in order to estimate a response rate, assumptions need to be made about the proportion of nonrespondents who were eligible or ineligible. Depending on these assumptions, estimates of the 2016 MySurvey response rate range from 9.6% (if all nonresponders were in fact eligible) to 13.5% (based on the proportional allocation method, which is a conservative estimate of the percentage of responders who were eligible—see Smith, 2009) to 17.8% (if it is assumed that 50% were eligible) to 91.5% (if no nonresponders were eligible).

Of the 1,764 15 to 20-year-olds who completed the survey, there were slightly more females than males (53.4% vs 46.6%), 75.5% were White (24.5% were non-White), 88.5% were non-Hispanic, and 70.3% had a mother with at least a college degree. The mean age was 17.6 years of age (SD=1.6).

2.4 Measures

2.4.1. Party attendance.—Lifetime party attendance with alcohol was assessed with the following item: “When was the last time you attended a party where alcohol was being served, whether you were drinking or not?.” Response options included “sometime in the last 7 days,” “sometime in the past 30 days,” “sometime in the past 12 months,” “more than 12 months ago” and “never attended a party with alcohol.”

2.4.2. Substance use at parties.—Substance use at parties was assessed with the two questions pertaining to others' and personal use of substances at the last party attended. The following question assessed others' substance use: "At the last party you attended where alcohol was being served, did you see any of the following activities?" Response options included "Marijuana use," "Synthetic drug use (e.g., 7H, K2, Spice)," "Prescription drug misuse (e.g., Ritalin, Adderall, Vicodin, Percocet, OcyContin, Xanax, Valium, Ambien)," "Over-the-counter (OTC) drug misuse (e.g., cough or cold medicine, skittles)," and "Other illicit/street drug use (e.g., cocaine, crack, meth, crystal, crank, hallucinogens, heroin, Rohypnol, GHB, ketamine or ecstasy)." Participants were also asked if they had used the following substances at the last party they attended: marijuana (weed, pot, hash, hash oil), Illicit/street drugs (e.g., cocaine, crack, meth, crystal, crank, hallucinogens, heroin, Rohypnol, GHB, ketamine or ecstasy), synthetic drugs (e.g., 7H, K2, Spice), over-the-counter (OTC) drugs (e.g., cough or cold medicine, "skittles," "DMX," "sizzurp," "Triple C's") for reasons other than for what they were designed, and ADHD medication (e.g., Ritalin, Dexedrine, Adderall, Concerta, methylphenidate), pain medication (e.g., Vicodin, Loritab, Percocet, OcyContin), or sedative or anxiety medication (e.g., Ativan, Xanax, Valium, Klonopin) without a doctor's prescription or for reasons other than for what they were prescribed. The parties were categorized into the following three categories based on the substances observed or used: alcohol-only (Alc-only), marijuana+alcohol (Mj+Alc), or illicit drug+marijuana+alcohol (ID+Mj+Alc). A party was categorized as Alc-only when a survey participant responded "no" to all other substance use response options for either others' use at the party or their own use at the party. Parties with marijuana and alcohol but no other drug use were coded as Mj+Alc. Parties with ID+Mj+Alc were categorized based on affirmative responses to "synthetic drug use," "prescription drug misuse," "over-the-counter drug misuse," or "other illicit/street drug use" for either others or self. All parties with ID+Mj+Alc had alcohol consumption and 85.3% had marijuana use. Given that they majority of the parties with ID+Mj+Alc had marijuana use, we did not create a separate ID +Alc party type. Instead, we classified parties with illicit drugs as ID+Mj+Alc parties, reflecting the fact that most of these parties involved marijuana.

2.4.3. Covariates.—Age, sex (male or female), ethnicity (Hispanic or Non-Hispanic), and race (White, Black/African American, American Indian/Native American, Asian/Pacific Islander, Multiracial, or Other) were reported. Race was recoded as White or Non-White due to a relatively small number of individuals reporting a Non-White race. Mother's completed education level, a marker of socioeconomic status, was coded as "Less than a college degree" or "Completed college or more".

Party location was assessed with the following item – "For the last party that you attended where alcohol was being served, where did it mostly take place?." Response options included "at my home (or apartment or dorm)," "in another person's home," "in a hotel," "in a bar or restaurant," "at a park or beach," "at a stadium or playing field," "at an indoor recreation center," "in a vehicle such as a car, truck or limousine," "on a boat," "at work," "in an open field or woods," "at school," "on the street," and "other." Party location was coded as "my home" ("at my home (or apartment or dorm)"), "other's home" ("in another person's home"), and "other" (all remaining response categories).

Party size was assessed with the following open-ended item, treated as a continuous variable, “How many people, other than you, were at the party?.” Due to the skewed distribution, we used the natural log of party size in all models. The sex composition of the party was assessed with the item: “Who was at the party?.” Response options included “all females,” “mostly females,” “about half females, half males,” “mostly males,” and “all males.” Sex composition was coded as “majority female” (“all females” or “mostly females”), “majority male” (“mostly males” or “all males”), and “mixed-sex” (“about half females, half males”). Age composition was assessed with “How many of the people at the party were under 21?.” Response options included “none,” “a few,” “some,” “many,” and “all.” Age composition was coded as “mostly over 21” (“some,” “a few,” or “none”) and “mostly under 21” (“many” or “all”).

2.4.4. State marijuana law.—The presence of a medical and/or recreational state level medical marijuana law was determined by examining the National Conference of State Legislatures’ website (National Conference of State Legislatures, 2017). States that had both a medical and recreational law as of June 1, 2016 were coded as “medical and recreational” and states with only a medical law as of June 1, 2016 were coded as “medical-only.” The reference category was “no medical or recreational law” and “no medical law,” respectively.

2.5. Statistical Analysis

Descriptive statistics were calculated to describe the demographic characteristics of party attendees and characteristics of the party for all parties combined and for each party. Bivariate and multivariable logistic regression was performed to identify correlates of substance use at parties. Separate logistic regression models were conducted for each pair of outcomes: Mj+Alc vs. Alc-only and ID+Mj+Alc vs. Alc-only. We screened covariates in bivariate analyses and retained covariates in the multivariable logistic regression model that had a p-value of less than 0.1. All modeling adjusted for within-community clustering by treating community as a random effect using PROC GLIMMIX with a logit link function in SAS version 9.4. Adjusted and unadjusted odds ratios and 95% confidence intervals are presented.

3. Results

3.1. Characteristics of participants who ever attended a party with alcohol

There were 1,089 (61.7%) participants who reported ever attending a party with alcohol present (see Table 1). There were slightly more females (54.6%) than males (45.4%). The majority of the sample was non-Hispanic (85.8%), White (76.4%), and had a mother with a college degree or higher (71.1%) which indicates higher socioeconomic status. On average, participants were 17.9 years old (range: 15–20 years old). Among the participants who had attended a party, 35.3% reported consuming alcohol but not using other substances at the last party attended, 12.5% reported using marijuana, and 3.8% reported using illicit drugs.

At the time of data collection, one state (Colorado) in our sample had both a medical and recreational marijuana law, 3 states (California, New Mexico, and New York) had a medical marijuana law only, and 3 in states (Georgia, Indiana, and Iowa) neither medical or

recreational marijuana use was legal. There were 157 (15.3%) participants who resided in a state with a medical and recreational marijuana law, 574 (52.1%) participants who resided in a state with a medical-only marijuana law, and 348 (32.0%) participants who resided in a state where neither medical nor recreational use of marijuana was legal.

3.2. Observed or self-reported use of alcohol, marijuana, and illicit drug at parties

At the last party attended by the 1,089 participants, 60.3% of the parties had Alc-only, 24.9% Mj+Alc, and 10.0% were ID+Mj+Alc parties (Table 1). Of the parties with ID+Mj +Alc, 85.3% of the parties had marijuana use, 67.3% had prescription drug misuse, 54.9% had other illicit drug use, 33.7% had over-the-counter drug misuse, and 30.7% had synthetic cannabinoid use.

3.2.1. Parties with Mj+Alc.—Older participants were more likely to attend a party with Mj+Alc use (AOR=1.4; 95% CI:1.2, 1.5; p<0.001) (Table 2). Parties occurring at someone else's home compared to the participant's home (AOR=3.8; 95% CI:1.8, 7.8; p<0.001), and parties larger in size (AOR=1.3; 95% CI:1.1,1.6; p=0.009) were more likely to have Mj+Alc use. Compared to parties with attendees mostly under 21 years of age, parties with the majority of attendees over 21 years of age were less likely to have Mj+Alc use (AOR=0.3; 95% CI:0.2, 0.4; p<0.001). Parties occurring in states where medical and recreational marijuana were legal were 2.6 times more likely to have marijuana use than parties occurring in states with no legalization (95% CI:1.6, 4.3; p<0.001) and 2.1 times more likely to have marijuana use than in states where only medical marijuana was legal (95% CI:1.4, 3.0; p<0.001).

3.2.2. Parties with ID+Mj+Alc.—Participants whose mother earned a college degree were less likely than those whose mother had not earned a college degree to attend a party with ID+Mj+Alc (AOR=0.5; 95% CI: 0.3, 0.9; p=0.014) (Table 2). Older age of the participant (AOR=1.3; 95% CI:1.1, 1.5; p=0.004) and larger party size (AOR=1.5; 95% CI: 1.2, 1.9; p=0.002) were associated with attendance at a party with ID+Mj+Alc. Compared to parties with an equal number of males and females, parties with majority females were 2.2 times more likely to have ID+Mj+Alc use (95% CI:1.2, 1.9; p=0.014). Compared to parties with attendees mostly under 21 years of age, parties with the majority of attendees over 21 years of age were less likely to have ID+Mj+Alc use (AOR=0.3; 95% CI:0.2, 0.5; p<0.001).

4. Discussion

This study advances the literature by examining the context of parties attended by adolescents and young adults where marijuana and illicit drug use, in addition to alcohol, were used. We found that approximately 40% of adolescents and young adults witnessed marijuana and/or illicit drug use at the last party they attended. Of the parties with ID+Mj +Alc, the majority of individuals reported observing or using marijuana (85.3%), over half had prescription drug misuse and other illicit drug use (67.3% and 54.9%, respectively), and about a third had over-the-counter drug misuse and synthetic cannabinoid use (33.7% and 30.7%, respectively). The percentage of adolescents and young adults in our sample who reported attending a party where marijuana and/or illicit drugs were being used was greater

than an earlier study with a similar, but slightly older, age group (40% vs. 23%, respectively; Clapp et al., 2006). We are unable to ascertain if this difference is due to historical changes, differences in sampling, or methodological differences between studies. Our findings corroborate previous research suggesting that marijuana and illicit drug use among adolescents and young adults commonly occur in the social context of a party (Clapp et al., 2006; McCabe et al., 2014; Terry-McElrath et al., 2013).

The only individual-level characteristics associated with party-attendance were age (parties with Mj+Alc and ID+Mj+Alc) and mother's education level (parties with ID+Mj+Alc). The average age of attendees at parties with Mj+Alc and ID+Mj+Alc was 18 while the average age of attendees at parties with Alc-only was 17. Adolescents and young adults who are 18 years of age may have less parental supervision and be exposed to new environments (e.g., college or solo-dwelling) making them more susceptible to attending parties where marijuana and illicit drug use occur. Having a less educated mother, a proxy for socioeconomic status, was associated with attending a party with ID+Mj+Alc. While current national data reports no difference in use of illicit drugs based on socioeconomic status (Miech et al., 2017), our findings suggest that there may be a difference in exposure to illicit drugs due to attending parties where illicit drugs are being used. Future research should examine how other factors associated with substance use, including perceived peer norms (Perkins & Berkowitz, 1986), perceived risk (Gallucci, Martin, Beaujean, & Usdan, 2015; Ponnet, Wouters, Walrave, Heirman, & Van Hal, 2015), and substance use history, both influence and are influenced by attending parties with substance use.

The party context affected whether or not marijuana and illicit drug use occurred. Parties with Mj+Alc were more likely to occur at someone else's home compared to the participant's home. These findings are consistent with past research that suggests that adolescents are more likely to use alcohol (Mayer et al., 1998), marijuana, and illicit drugs at other peoples' homes (Hussong, 2000). The majority of attendees at parties with Mj+Alc and ID+Mj+Alc were under 21 years of age. This, in addition to our finding that older participants (e.g., 18–20) were more likely to attend parties with Mj+Alc and ID+Mj+Alc, is consistent with the literature on high-risk alcohol consumption among adolescents and young adults, which suggests that heavier substance use is more likely to occur among same age peers (Connolly et al., 1992; Harford & Spiegler, 1983). We speculate that parties attended by 15 to 20-year olds with alcohol-only may be more likely to have older adults present compared to parties with Mj+Alc and ID+Mj+Alc. We also found that parties with Mj+Alc and ID+Mj+Alc were larger in size. Larger parties may increase the opportunities to witness drug use due to the presence of more people, and they may also be higher-risk environments than smaller parties (Mayer, Forster, Murray, & Wagenaar, 1998; Senchak, Leonard, & Greene, 1998; Wagoner et al., 2013), especially if multiple substances are being used at the same time (Brière et al., 2011; Egan et al., 2012; McCabe et al., 2006; Pennings et al., 2002). Parties with ID+Mj+Alc were more likely to consist of majority females compared to an equal mix of sexes. Possible explanations include that women may perceive same-sex parties to be safer environments to use or experiment with illicit drugs (Sheard, 2011), attendance at parties with illicit drugs may be motivated by the desire to get high or experiment with substances compared to the motivation to socialize or "hook-up" with

members of the opposite sex, or gendered parties may otherwise be inherently different from parties with an equal number of males and females.

Parties with Mj+Alc were more likely to occur in the states within our sample where medical and/or recreational marijuana were legal. Our finding suggests that adolescents and young adults may be more likely to use marijuana openly at parties in states where medical or recreational marijuana has been legalized. Possible explanations for this finding include increased access to marijuana, normalization of marijuana, or increased visible use of marijuana due to its legal status (however, among our participants, marijuana would only be legal for participants over 18 years of age with a medical marijuana license). Observing or participating in marijuana use at parties may further exacerbate favorable norms towards marijuana use among individuals in states where medical or marijuana use is legal (Friese et al., 2016; Miech et al., 2015; Paschall et al., 2017; Sevigny, 2017). It is important to point out that our study was cross-sectional and temporality could not be assessed. Thus, it could also be argued that the higher prevalence of marijuana use in these states may have influenced the medical and recreational legalization of marijuana. In order to adapt to the changing legal climate in relation to marijuana, a growing number of communities in the United States have passed new, or revised existing, Social Host Ordinances, policies that address large underage drinking parties (Wagoner et al., 2011), to include language specific to the provision and presence of marijuana at parties with attendees who are under 21 years of age (e.g., Fort Collins, CA, Municipal Code Ord. No. 047 § 3, 2016; Redding, CA, Municipal Code. Ord. No. 2537 § 1, 2015). Currently, it is unknown how many communities have adopted these policies and if they are effective at reducing access to, or use of, marijuana by individuals under 21 years of age.

Additional research encompassing all levels of the socio ecological model is needed to further understand substance use in the context of parties attended by adolescents and young adults. Future research should examine the salience of alcohol, marijuana, and illicit drug use at parties (i.e., how important or central alcohol, marijuana, or illicit drugs is to the attendee of the party) and motivations for attending parties with polysubstance use. The physical, social, and legal consequences of attending parties with polysubstance use, and use of harm reduction strategies to minimize these consequences, should be examined. Especially given the evolving policy landscape related to marijuana legislation in the states, future studies should examine the social context of marijuana use.

4.1. Limitations

Although the sample included 24 communities across seven states that covered most regions of the country, the results may not be generalizable to all 15 to 20-year-olds in the US, especially given the relatively low response rate and higher percentage of non-Hispanic Whites in the sample compared to the demographics of the participating communities. This may be particularly true for adolescents and young adults who live in larger urban areas or smaller communities than those in our study, where modal characteristics of parties may differ. Additionally, the results pertaining to marijuana policy may not be generalizable to other states, especially states with different marijuana policy provisions (Johnson, Hodgkin, & Harris, 2017; Pacula, Powell, Heaton, & Sevigny, 2015).

Substance use observed and used at parties was self-reported and is subject to social desirability bias, although this is likely to have been minimized through our use of an online survey (McCabe, Diez, Boyd, Nelson, & Weitzman, 2006). Additionally, the question used to determine party attendance restricted responses to parties where alcohol was present. Thus, we were unable to capture parties where marijuana, illicit, or prescription drug use were occurring but alcohol was not concurrently being consumed by attendees. Furthermore, our findings may also underestimate exposure of this population to parties where drug use beyond alcohol occurs, as we only asked participants questions to characterize the last party they attended. Participants may also have had trouble responding accurately to the questions if substance use by others was conducted discretely at the party or in a manner that it was difficult to observe (e.g., edible marijuana use (Friese et al., 2016)). If participants were not able to accurately report all substance use occurring at a party, our findings would be an underestimate of the number of parties with marijuana and illicit drug use. In these cases, low visibility of the behavior may be less likely to contribute to normalization of marijuana and illicit drug use.

4.2. Conclusions

The findings from the present study suggest that a relatively large number of adolescents and young adults are exposed to marijuana and illicit drugs at parties that involve drinking. Party size, age and sex balance of the attendees, and state marijuana policy climate were all related to the presence of marijuana and illicit drug use at parties. The findings highlight the need for prevention efforts targeting marijuana and illicit drug use at parties and continued research on the impact of the changing policy landscape related to marijuana.

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Table 1.

Sample characteristics of party attendees by type of substance(s) used at last party attended (MYSurvey 2016, n = 1,089 ever attended a party with alcohol)

	Overall	Alcohol-Only	Marijuana+Alcohol	Illicit Drug+Marijuana+Alcohol
	N=1,089	N=657 (60.3%)	N=271 (24.9%)	N=109 (10.0%)
	Frequency (%)	Frequency (%)	Frequency (%)	Frequency (%)
Individual Characteristics				
Sex				
Male	493 (45.4%)	298 (45.4%)	110 (40.7%)	59 (54.1%)
Female	593 (54.6%)	358 (54.6%)	160 (59.3%)	50 (45.9%)
Race				
White	820 (76.4%)	488 (75.3%)	216 (80.9%)	78 (71.6%)
Non-White	254 (23.6%)	160 (24.7%)	51 (19.1%)	31 (28.4%)
Ethnicity				
Hispanic	151 (14.2%)	81 (12.6%)	38 (14.4%)	19 (17.8%)
Non-Hispanic	915 (85.8%)	563 (87.4%)	226 (85.6%)	88 (82.2%)
Mother's Education Level				
Less than College Degree	306 (28.9%)	170 (26.5%)	77 (28.9%)	41 (39.4%)
College Degree or More	754 (71.1%)	471 (73.5%)	189 (71.1%)	63 (60.6%)
Age, *Mean (SD)*	17.9 (1.6)	17.7 (1.6)	18.2 (1.5)	18.2 (1.5)
Individual Substance Use at the Party				
Alcohol only	357 (35.3%)	226 (37.2%)	101 (39.8%)	21 (19.8%)
Marijuana only or marijuana + alcohol	126 (12.5%)	-	92 (36.2%)	30 (28.3%)
Illicit	38 (3.8%)	-	-	38 (35.8%)
None	489 (48.4%)	382 (62.8%)	61 (24.0%)	17 (16.0%)
Party Characteristics				
Location				
My home	108 (9.9%)	83 (12.6%)	10 (3.7%)	9 (8.3%)
Other's home	800 (73.7%)	458 (69.7%)	229 (84.8%)	78 (71.6%)
Other place	178 (16.4%)	116 (17.7%)	31 (11.5%)	22 (20.2%)
Size, *Mean (SD)*	37.3 (66.8)	32.7 (43.7)	37.3 (67.6)	51.4 (108.5)
Sex Composition				

	Overall	Alcohol-Only	Marijuana+Alcohol	Illicit Drug+Marijuana+Alcohol
	N=1,089	N=657 (60.3%)	N=271 (24.9%)	N=109 (10.0%)
	Frequency (%)	Frequency (%)	Frequency (%)	Frequency (%)
Majority Males	122 (11.2%)	69 (10.5%)	27 (10.0%)	19 (17.4%)
Majority Females	120 (11.0%)	74 (11.3%)	20 (7.4%)	22 (20.2%)
Mixed-sex	844 (77.7%)	514 (78.2%)	223 (82.6%)	68 (62.4%)
Age Composition				
Mostly Under 21	515 (47.6%)	254 (38.8%)	171 (63.3%)	69 (63.9%)
Mostly Over 21	568 (52.4%)	401 (61.2%)	99 (36.7%)	39 (36.1%)
State Marijuana Law				
Medical and Recreational	167 (15.3%)	83 (12.6%)	56 (20.7%)	22 (20.2%)
Medical Only	574 (52.7%)	336 (51.1%)	157 (57.9%)	52 (47.7%)
Not Legal	348 (32.0%)	238 (36.2%)	58 (21.4%)	35 (32.1%)

*Due to missing data, some percentage denominators may differ from the totals in the column headers.

Table 2.

Multivariable logistic regression characteristics of party attendees and parties by type of substance(s) used at last party attended (MYSurvey 2016, n = 1,089 ever attended a party with alcohol)

	Marijuana+Alcohol vs. Alcohol-Only AOR (95% CI); p-value	Illicit Drug+Marijuana+Alcohol vs. Alcohol-Only AOR (95% CI);p-value
Individual Characteristics		
Non-White vs. White (referent)	0.8 (0.5, 1.1)	-
Mother with college degree vs. less than college degree (referent)	-	0.5 (0.3, 0.9)*
Age	1.4 (1.2, 1.5)***	1.3 (1.1, 1.5)**
Party Characteristics		
Other's home vs. My home (referent)	3.8 (1.8, 7.8)***	-
Other place vs. My home (referent)	1.8 (0.7, 4.1)	-
Size	1.3 (1.1, 1.6)**	1.5 (1.2, 1.9)***
Majority Females vs. mixed-sex (referent)	0.6 (0.3, 1.1)	2.2 (1.2, 4.0)*
Majority Males vs. mixed-sex (referent)	0.7 (0.4, 1.2)	1.9 (1.0, 3.7)
Mostly Over 21 vs. Mostly Under 21 (referent)	0.3 (0.2, 0.5)***	0.3 (0.2, 0.5)***
State Marijuana Law		
Medical and Recreational vs. None (referent)	2.6 (1.6, 4.3)***	1.9 (0.7, 4.8)
Medical Only vs. None (referent)	2.1 (1.4, 3.0)***	1.1 (0.6, 2.1)

*p<0.05;

**p<0.01;

***p<0.001