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Self-Correction of Unreported Marijuana Use by Participants Taking a Street Intercept Survey

Joseph J. Palamar, PhD, MPH[1], **Austin Le, MSc**[1,2]

[1]New York University Grossman School of Medicine, Department of Population Health, New York, NY, USA

[2]New York University College of Dentistry, New York, NY, USA

Abstract

Background: Due to underreporting, a major challenge associated with drug use surveys is obtaining precise estimates of drug use.

Objective: This study examined reliability of self-reported lifetime marijuana use among electronic dance music (EDM) party attendees—a high-risk population for drug use.

Methods: 794 adults (35.1% female) entering EDM parties were intercept-surveyed. Participants were asked about lifetime marijuana use early in the survey. Those not reporting use were asked 5–10 minutes later if their earlier response was correct. Participants reporting their original response was not correct were asked to check off a reason why they did not originally report use. Participants were also asked at the end of the survey how honestly they responded throughout the survey. Prevalence of lifetime marijuana use with and without corrected responses was compared and risk factors for underreporting were examined using a Poisson generalized linear model.

Results: Among those not reporting marijuana use, 31.2% subsequently reported use when asked again. Prevalence of use increased from 73.7% to 81.9% after correcting responses, an 8.2% absolute increase and a 10.0% relative increase. Reporting lifetime use of ecstasy and/or LSD was associated with lower risk for underreporting marijuana use. Compared to those reporting that they answered all questions honestly, those who reportedly answered most or no questions honestly were also at higher risk for underreporting.

Conclusion: Asking participants to confirm previous responses can help detect underreporting of drug use on intercept surveys. Results can inform survey methods when participants are believed to be at risk for underreporting.

Keywords

marijuana; survey reliability; underreporting

Address correspondence to: Joseph J. Palamar, Department of Population Health, 180 Madison Avenue, Room 1752, New York, NY 10016, joseph.palamar@nyulangone.org, T: 1-646-501-3555.

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Introduction

Despite rapidly shifting state-level policies, prevalence of marijuana use in the United States (US) has been relatively stable in recent years (1). Among subsets of the population, however, prevalence of use, frequent use, and cannabis use disorders have been increasing (1–4). Consequently, the importance of accurately tracking prevalence of marijuana use is underscored. Self-report via survey methods is the most common means of estimating prevalence of drug use in epidemiological research owing largely to cost-efficiency and practicality-related reasons over alternative approaches such as biological testing (5). In order for survey findings to be meaningful, however, it is imperative that respondents report accurately and honestly so that the data are reliable. Of particular concern is the potential for underreporting of drug use, which could result in underestimates of use and ultimately mislead policymakers to underestimate the severity of a possible drug problem and, consequently, fail to implement adequate preventative or harm-reducing responses.

Indeed, numerous studies have observed that underreporting can be a limitation of self-report surveys (6–10). For example, biological testing was added to a population survey of adults in Chicago in 2001/02, leading to increased estimates of recent (past-3-month) marijuana use from 23.3% to 29.1% when both self-report and test results were considered (11). A more recent study of over 250,000 pregnant women in California found that estimated prevalence of prenatal marijuana use increased from 4.2% to 7.1% when considering both self-report and positive detection through urine testing (12). Underreporting, however, is by no means limited to marijuana use. For example, studies comparing the reliability of self-reported drug use responses with results from hair-testing have found that cocaine, ketamine, and methamphetamine use was significantly underreported in the surveys (8,13,14). Likewise, others have found significant underreporting of amphetamine use and opioid use when self-reported responses were compared with urine analysis (15).

Moreover, the potential for inaccurate reporting is not exclusive to studies using biological tests. For example, a study investigating inaccurate responses from Monitoring the Future (MTF) national survey of high school seniors found that 37.1% and 28.2% reported past-year nonmedical Vicodin use nonmedical OxyContin use, respectively, after having originally denied past-year nonmedical opioid use in the same survey (16). By the same token, recanting—the subsequent denial of previously self-reported drug use on a follow-up survey—is another common phenomenon that exposes the questionable reliability of survey responses. Existing research on several longitudinal studies has shown that recanting of previously reported drug use is common (17–21), and while reports of marijuana use have been shown to be more stable than other drugs, recanting marijuana use is common nonetheless (22,23). In fact, findings from a longitudinal study found that one-third of participants eventually recanted marijuana use (24).

While there may be many reasons at large underlying inaccurate reporting, commonly cited reasons for failing to report drug use include stigmatization of drug use leading to reluctance to report drug use, poor comprehension of survey questions, and forgetfulness (25). Some drug researchers add biological testing to supplement self-report as a means of detecting

underreported use, but testing can often be unfeasible and expensive, particularly for street-intercept surveys. Moreover, street-intercept surveys are especially useful in situations that require rapid survey administration in hard-to-reach populations (26–28), and hence the addition of a biological test that could slow the execution process may effectively negate a primary advantage of intercept surveys.

Therefore, further research that gives greater insight into the extent of underreporting and its risk factors is critical to improving the reliability of self-report survey findings. In particular, research investigating the reliability of street-intercept surveys would be most welcome since much of the research on reliability has hitherto focused on longitudinal studies and/or surveys administered via audio computer-assisted self-interview (ACASI) software that take place in private settings such as homes or offices (17–21,29,30). Accordingly, the objective of this study is to investigate the potential extent of underreporting of marijuana use among electronic dance-music (EDM) attendees—a known high-risk population for drug use (7,13,14,31)—and provide insight into possible risk factors for underreporting in order to propose means of improving future self-report surveys designs which can yield more reliable data.

Methods

Procedure

Time-space sampling methods were used to survey participants in this study (32). In this multi-stage sampling design, parties were randomly selected each week (at the design stage) and then attendees entering each randomly selected party were surveyed. Although party selection was random, we aimed to survey as many eligible individuals as possible, rather than every *n*th individual, in order to conserve resources. Similar studies in New York City (NYC) using time-space sampling have found that eliminating random selection at the individual level did not lead to significant demographic differences between participants (33). Each week, a party selection list was populated based on 1) parties listed on popular EDM websites; 2) nightclubs that consistently held EDM parties on certain nights; and 3) through recommendations of key informants in the scene. Random selection of parties was conducted using R 3.5 software (R Core Team, Vienna, Austria).

Recruitment typically occurred 1–2 nights per week on Thursday through Sunday. While most parties were held at nightclubs, we also surveyed participants outside of one large daytime EDM festival. To be eligible, individuals must have been 1) ages ≥18; and 2) about to enter the randomly selected party. Those about to enter parties were approached by a recruiter, and, if eligible, were asked if they were willing to take a survey about drug use. Those interested in participating self-administered the anonymous survey (on a tablet) after providing informed consent. Participants were encouraged not to take the survey in the view of others. The survey took about ten minutes to complete. 794 participants completed the intercept survey and were compensated $10 upon survey completion. Recruitment was conducted from January through August 2019 and the survey response rate was 64%. This study was approved by the New York University Langone Medical Center institutional review board.

Measures

Participants were asked about their age, sex, and race/ethnicity, education, sexual orientation, frequency of past-year EDM party attendance, and lifetime (ever-use) use of various drugs such as ecstasy (MDMA, Molly), powder cocaine, LSD, ketamine, and methamphetamine. Participants were also asked about lifetime marijuana use. Using skip-logic, those not reporting marijuana use were asked about their response near the end of the survey (~5–10 minutes later). Specifically, the survey said, “Earlier on, you checked off that you never used marijuana”, and then asked, “Is it correct that you never used marijuana?” Response options were “yes” or “no, I have used marijuana”. Those replying that they did in fact use marijuana were asked to check off a reason why they checked off “never used” earlier in the survey. Response options were “I didn’t read the question carefully”, “I didn’t think hard enough about the question”, “I didn’t want to answer follow up questions about marijuana”, “I don’t really care about this survey”, and “Other”. At the end of the survey participants were asked, “How many questions on this survey did you answer honestly?” Response options were “all”, “most”, “some”, “hardly any”, and “none”.

Statistical Methods

Lifetime marijuana use was estimated first according to participants’ original response and then based on corrected responses from those who subsequently reported use. Percentages of reasons for changing one’s response were then estimated, and then each independent variable was examined in relation to whether or not participants originally reporting no use changed their response (changed response versus originally reported use). First, bivariable comparisons were made using Rao-Scott chi-square (34) and then all independent variables were fit into a multivariable model. Specifically, all variables were fit into a generalized linear model using Poisson and log link, which generated adjusted prevalence ratios (aPRs) for each independent variable. Since nightclubs and festivals are different types of EDM party environments, they may have somewhat heterogeneous populations (despite having largely overlapping populations). Therefore, as a sensitivity test, we re-computed our multivariable model with data limited to those collected from those surveyed entering nightclubs (n=702). Finally, using Rao-Scott chi-square, we compared participant demographic and drug use characteristics according to 1) reasons for underreporting marijuana use (among those changing their response); and 2) whether or not they reported answering all or most survey questions honestly.

We calculated sample weights based on the proportion of all party attendees who completed a survey and each surveyed individual’s annual frequency of EDM venue attendance (35). This was done because individuals attending venues with a higher sampling fraction (higher proportion of party attendees surveyed) and those attending EDM venues more frequently were believed to have a higher likelihood of being sampled (32). Parties were accounted for as strata when specifying the complex survey design. Data were analyzed using Stata 13 SE (StataCorp, College Station, TX) and survey commands were used to generate estimates (34).

Results

As per the marijuana question at the beginning of the survey, an estimated 73.7% of EDM attendees have ever used marijuana. However, after correcting responses based on the follow-up question, the estimated prevalence rose to 81.9% (an 8.2% absolute increase and a 10.0% relative increase). Specifically, 31.2% of those originally not reporting use changed their response.

Table 1 presents risk factors for changing one's response (examining risk factors for the 10.0% of marijuana users who originally reported no use versus those originally reporting use). In bivariable analyses, those who were surveyed at a nightclub were more likely to change their response than those surveyed at a festival (12.8% versus 3.8%, p=.014), and compared to those reporting no lifetime use, those reporting lifetime use of ecstasy (2.6% versus 19.1%, p<.001), cocaine (3.3% versus 16.0%, p<.001), LSD (1.6% versus 14.2%, p<.001), and/or ketamine (1.8% versus 12.4%, p<.001) were less likely to change their response. However, those reporting at the end of the survey that they did not answer all questions honestly were more likely to have changed their response (p<.001) with 38.9% of those mostly answering honestly and 31.4% of those answering no questions honestly changing their response to the marijuana question. It should be noted that bivariable results include uncorrected p-values. If a Bonferroni correction is applied due to concern about multiple comparisons (α=.05/12 outcomes=.004), significance remains for all discussed comparisons other than venue type.

In the multivariable model (Table 1 continued), compared to those aged 18–24, those age ≥30 were at higher risk for changing their response (aPR=2.45, 95% confidence interval [CI]: 1.10, 5.46, p=.028), and compared to those identifying as heterosexual, those identifying as bisexual or other sexuality were also at lower risk for changing their response (aPR=0.06, 95% CI: 0.01, 0.32, p=.001). Those reporting lifetime use of ecstasy (aPR=0.22, 95% CI: 0.08, 0.58, p=.003) and/or LSD (aPR=0.32, 95% CI: 0.12–0.86, p=.024) were also at lower risk for changing one's response. Finally, compared to those who reported answering all questions honestly, those reporting answering most (aPR=7.34, 95% CI: 4.02–13.42, p<.001) or no questions honestly (aPR=2.72, 95% CI: 1.11–6.69, p=.029), were at increased risk for changing one's response. With respect to the sensitivity test focusing only on participants surveyed entering nightclubs, as is shown in Supplemental Table 1, compared to the model examining the full sample, results are similar with regard to magnitude and significance.

With regard to reasons for not reporting marijuana use earlier on the survey, self-reported reasons were as follows: 65.0% did not read the question carefully, 18.5% did not care about the survey, 8.3% did not want to answer potential follow-up questions, and 8.2% replied "other" or did not provide a response. Table 2 compares characteristics of participants according to reported reason for not reporting use earlier in the survey. In terms of race/ethnicity, 75.2% of non-white participants reported that they did not carefully read the question versus 51.2% among white participants (p=.048). Type of venue where participants were surveyed also played a role, with 70.8% of those surveyed entering a nightclub reporting that they did not carefully read the question versus 20.0% among those entering a

festival (p=.008). Those not reporting lifetime use of LSD and/or ketamine were also more likely to report having not read the question, with 66.8% of those not reporting lifetime LSD use (versus 32.5% of those reporting use; p=.026) and 67.1% of those not reporting lifetime ketamine use (versus 15.9% of those reporting use; p<.001) more likely to have reported not closely reading the question. With regard to honesty, those reporting answering all questions honestly (81.9%) were more likely than those reporting answering most (49.9%) or less than most (25.0%) questions honestly to underreport due to not closely reading the question (p=.042). Again, it is prudent to note that bivariable results include uncorrected p-values, and if a Bonferroni correction is applied due to concern about multiple comparisons (α=.05/12 outcomes=.004), significance remains only for lifetime ketamine use.

Finally, with regard to how participant characteristics relate to whether they reported answering all or most survey questions honestly, as is shown in Supplemental Table 2, lifetime ecstasy use was the only significant predictor, with those reporting ecstasy use less likely to report having answered dishonestly compared to those not reporting ecstasy use (3.7% versus 9.3%, p=.042). However, ecstasy use is no longer significant if a Bonferroni correction is applied (α=.05/11 outcomes=.005).

Discussion

Inaccurate reporting in survey-based studies is a relatively common phenomenon that reduces the reliability of findings. This study investigated the extent of underreporting of marijuana use among EDM party attendees as well as potential reasons for underreporting.

We found that older individuals (ages ≥30) were at higher risk for changing their response compared to young adults (ages 18–24), with 15.1% changing their response when queried again compared to ~8% in both younger age groups. Therefore, it appears that underreporting is particularly prevalent among older individuals. Older adults are more likely to have important familial roles (e.g., marriage, parenthood) and/or jobs and careers than can be compromised if others were to learn about their drug use, which tends to predict a lower likelihood of self-reporting use of illegal drugs (36). However, it is unknown whether the older adults in this sample had more familial roles and since this was not a general population sample and rather a targeted sample of party attendees, those with such familial roles may be underrepresented as those with young children (for example) may attend at a lower frequency. While drug use indeed decreases as individuals age (37), our findings suggest that a portion of decreased prevalence may be due to underreporting. Findings regarding age as a risk factor for underreporting, however, have been mixed (8,11,15). More research is needed to determine whether underreporting by older adults is in response to increased perceived risk associated with providing affirmative responses on a drug survey, or due to insufficient interest in or dedication to the survey. It is also possible that older individuals who have not used for some time may simply decide not to answer affirmatively, as supported by findings from several longitudinal studies showing that many older individuals recant previously reported drug use (17,19,21). More research is needed to determine drivers of these age associations as these may be dependent on unmeasured characteristics.

Those who reported use of ecstasy and/or LSD were at lower risk for not reporting marijuana use and subsequently changing their response. Although cocaine and ketamine use were not significant predictors in the multivariable model, use of either was significant in bivariable models, with large proportions of participants changing their response. While it is uncertain why some drugs as opposed to others remained significant predictors, previous studies on national samples of high school seniors have also found that use of the aforementioned drugs is associated with greater accuracy in reporting, with users of these drugs being less likely to provide discordant responses on surveys regarding nonmedical use of opioids or amphetamine (16,38). A potential explanation may be that users of multiple drugs are less likely to worry about stigma or legal consequences related to marijuana use, since marijuana is colloquially considered a “less serious” drug and one that is highly prevalent and legal to use (medically and/or recreationally) throughout much of the US. We believe those who have used marijuana, but not “harder” drugs, may be more hesitant or unwilling to report use due to this relative perception of stigma. It should be noted, however, that it is unknown whether those who changed their response regarding marijuana use also underreported use of other drugs.

While past research has found that lower educational attainment is associated with greater likelihood for providing inaccurate responses (39–41), education was not a significant risk factor in our model. Likewise, our findings did not show differences in terms of sex or race/ethnicity to be associated with changing responses to the marijuana question. At face value, this appears to contrast with past research on inaccurate reporting, which has often shown that black and Hispanic respondents tend to underreport drug use when compared to white respondents (24,42–45). However, it is worth noting that most of these studies are several decades old and did not use street-intercept methodology for administering surveys. Furthermore, these studies took place during a period when racial/ethnic minorities may have been more likely to underreport drug use due to elevated concerns about confidentiality or legal consequences (44). Therefore, our findings regarding race/ethnicity may be reflective of our current cultural and political climate being more embracing of marijuana use (at least in NYC), our survey methodology, and/or our target population, which is at high risk for drug use and hence may be inherently more open to disclosing marijuana use.

Additionally, our findings suggest that those identifying as bisexual or other sexual identity were at lower risk for underreporting marijuana use. Previous studies have found that people identifying as bisexual or other sexuality are more likely to report use of various drugs (46,47). Following the same logic outlined earlier, individuals using or willing to report use of different drugs may indeed be less averse to reporting marijuana use. However, this association remained significant while controlling for drug use and other factors, hence there may be something unique about these individuals that leads to less underreporting. While more research is needed, willingness to identify as a sexual minority may be associated with more honest reporting of drug use.

Participants who reported answering fewer than all questions honestly were at high risk for changing their response. Of interest, those reporting answering most questions honestly were at higher risk for underreporting than those reporting answering few or no questions honestly. Half of the under-reporters who reported answering most questions honestly did so

because they did not carefully read the question. A previous study of an EDM population with a follow-up also found that those who reported not answering all questions honestly were more than twice as likely to provide inconsistent responses regarding past-year use of a variety of drugs (7). Therefore, including a question assessing honest answering of questions may be a useful addition in future surveys to evaluate the extent of inaccurate reporting. Granted, reliability of such a question would be limited if participants also answered said question dishonestly or satisficed by not reading the question. To help address such cases, a question near the beginning of surveys can query planned honesty regarding survey administration. It should also be noted that honesty does not necessarily translate to known accuracy as one may not intentionally misreport but may have still answered questions in a careless or unthoughtful manner. Therefore, questions about accuracy of reporting may also help researchers determine which responses are more accurate. Ultimately, we believe that including questions gauging respondent honesty, as well as one or more type-in responses in the survey in addition to the closed-ended questions (7), may help determine instances of underreporting.

Finally, in our bivariable model, we found that respondents who were surveyed outside of festivals were less likely to change their response compared to respondents surveyed outside of nightclubs, which echoes findings in a previous study (7). This may potentially reflect the fact that greater attention or dedication is more likely to occur when a survey is taken during daytime hours outside of a festival rather than late at night when respondents may be rushing to enter a nightclub. While some may suggest surveying individuals in an office (e.g., with an ACASI) can produce reasonably reliable responses compared to street-intercept surveying, requiring scheduled visits will likely decrease response rates and adversely affect the generalizability of findings as a result. As such, researchers must consider this tradeoff when weighing study designs.

Given the potential for underreporting of drug use, it is important for researchers conducting survey-based studies to understand possible reasons for inaccurate reporting. In this study, nearly two-thirds (65.0%) of those changing their initial response on marijuana use attributed the correction to not reading the original question carefully. Non-white respondents were also more likely than white participants to report this as the reason for changing responses, and while potentially somewhat reflective of lower literacy levels among non-white participants reported in other studies (44), we did not find education to be a risk factor for correcting one’s response. Indeed, further research to elucidate the impact of race/ethnicity on inaccurate reporting in street-intercept surveys is welcome. In general, researchers need to ensure clarity and ease-of-comprehension for questions and answer choices, though some participants may be less likely to provide their full attention regardless. This was a particular concern for our street-intercept survey, as many participants were likely more focused on the party at hand than the survey itself. Furthermore, almost one-fifth (18.5%) who changed their response reported they simply did not care about the survey, while 8.3% reported that they did not report their marijuana use because they wanted to avoid potential follow-up questions. This reflects an additional important consideration—the proclivity to satisfice, defined as respondents investing minimal attention and/or taking shortcuts in order to complete the survey as soon as possible (41). Therefore, attention must also be given to factors which may affect participant interest, such as where the survey is

conducted, length of questions, length of survey, time of day, and incentives for completion. We do not believe underreporting of marijuana use was due to survey length because marijuana use was queried near the beginning of the survey.

Limitations

Only those who did not report marijuana use early in the survey were subsequently queried on the correctness of their initial response. We did not ask if affirmative responses were in fact correct so it is possible that there was undetected overreporting. However, overreporting appears to be rare and is most common among adolescents (e.g., providing mischievous responses) (20,48,49).

This study is also limited by its focus on lifetime use. We do not believe underreporting would be as extreme if more recent use was investigated. Some individuals may struggle to recall whether they ever used marijuana or other drugs. In addition, while recruiters tried to ensure privacy during self-administration of surveys on the street, it is possible that some participants did not perceive full privacy, which may have affected their survey responses. While more private environments (e.g., scheduled office visits) are more conducive to ensuring privacy, studies that require office visits tend to have lower response rates than intercept surveys (and lower generalizability).

Furthermore, there are limitations inherent to time-space sampling and associated weighting approaches. Weighting methods may not lead to perfect representation of the full hard-to-reach population of interest. As with previous studies, we did not randomly select at the individual level (attendees within parties) since it has been reported that this does not appear to affect estimates (33). Regardless, this method of estimating prevalence in hard-to-reach populations is imperfect and it is possible there were biases that could have affected our estimates. Finally, results may not be fully generalizable beyond the high-risk EDM party scene.

Conclusions

Asking participants questions (e.g., about drug use) more than once can help detect underreporting. Asking participants about how honest they were when responding appears to be a good indicator of whether reliable responses are provided. Future studies are needed to determine the extent of underreporting of use of drugs in other populations. Results can inform surveys when participants are at risk for underreporting.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1.

Sample characteristics and risk factors for correcting one's unreported marijuana use

		Bivariable Comparisons		Multivariable Model	
	Full Sample, Weighted % (n)	**Reported Use Early on Survey, Weighted %**	**Unreported Use and Changed Response, Weighted %**	**aPR**	**(95% CI)**
Age (Trichotomy)					
18–24 years	32.9 (335)	92.6	7.5	1.00	
25–29 years	34.7 (246)	92.3	7.7	0.88	(0.47, 1.67)
≥30 years	32.5 (213)	84.9	15.1	2.45*	(1.10, 5.46)
Sex					
Male	64.9 (467)	88.8	11.2	1.00	
Female	35.1 (327)	92.0	8.0	0.68	(0.34, 1.36)
Race/Ethnicity					
White	42.0 (383)	90.7	9.3	1.00	
Black	11.9 (77)	90.4	9.6	0.73	(0.33, 1.60)
Hispanic	20.9 (139)	85.6	14.4	1.30	(0.65, 2.61)
Other/Mixed	25.2 (195)	91.7	8.4	1.26	(0.51, 3.11)
Education					
College Degree	48.1 (396)	89.4	10.6	1.00	
High School or Less	12.9 (87)	80.7	19.3	1.40	(0.66, 2.97)
Some College	20.9 (174)	96.5	3.5	0.64	(0.24, 1.67)
Graduate School	18.1 (137)	90.5	9.5	0.41	(0.15, 1.09)
Sexual Orientation					
Heterosexual	76.0 (563)	89.9	10.1	1.00	
Gay/Lesbian	17.1 (120)	84.6	15.4	2.04	(0.86, 4.83)
Bisexual/Other	6.9 (111)	99.5	0.5	0.06**	(0.01, 0.32)
Where Surveyed					
Nightclub	68.1 (702)	87.2	12.8*	1.00	
Festival	31.9 (92)	96.2	3.8	0.35	(0.12, 1.05)
Lifetime Drug Use					
Ecstasy					
No	51.2 (48.8)	80.9	19.1***	1.00	
Yes	48.8 (484)	97.4	2.6	0.22**	(0.08, 0.58)
Powder Cocaine					
No	57.6 (353)	84.0	16.0***	1.00	
Yes	42.4 (441)	96.7	3.3	0.55	(0.23, 1.33)
LSD					
No	72.6 (482)	85.9	14.1***	1.00	
Yes	27.4 (312)	98.4	1.6	0.32*	(0.12, 0.86)
Ketamine					

		Bivariable Comparisons		Multivariable Model	
	Full Sample, Weighted % (n)	**Reported Use Early on Survey, Weighted %**	**Unreported Use and Changed Response, Weighted %**	**aPR**	**(95% CI)**
No	79.6 (573)	87.6	12.4***	1.00	
Yes	20.4 (221)	98.2	1.8	0.54	(0.12, 2.44)
Methamphetamine					
No	90.5 (707)	89.7	10.3	1.00	
Yes	9.5 (87)	93.0	7.0	2.22	(0.55, 8.93)
Honesty to Responses					
All	86.2 (637)	93.2	6.8***	1.00	
Most	7.3 (83)	61.1	38.9	7.34***	(4.02, 13.42)
Some or Hardly Any	1.7 (17)	85.4	14.6	1.51	(0.28, 8.01)
None	4.9 (56)	68.6	31.4	2.72*	(1.11, 6.69)

Note. The outcome variable indicates the individuals (10.0%) who originally did not report marijuana use and then later corrected their response to indicate use. aPR = adjusted prevalence ratio; CI = confidence interval.

* p<.05,

** p<.01,

*** p<.001

Table 2.

Reasons for changing one's response according to demographic and drug use characteristics

	Did Not Read Question Carefully	Do Not Really Care About Survey	Other Reason
	Weighted %	Weighted %	Weighted %
Age (Trichotomy)			
18–24 years	60.2	13.5	26.3
25–29 years	49.2	42.6	8.2
≥30 years	75.4	9.4	15.2
Sex			
Male	74.3	10.5	15.3
Female	42.7	37.9	19.4
Race/Ethnicity			
White	51.2	36.6	12.2
Non-White	75.2*	5.2	19.6
Education			
Less Than College Degree	75.7	12.5	11.8
College Degree	59.4	21.7	19.0
Sexual Orientation			
Heterosexual	67.0	20.8	12.1
Non-Heterosexual	57.3	9.3	33.4
Where Surveyed			
Nightclub	70.8**	19.3	9.9
Festival	20.0	12.0	68.0
Lifetime Drug Use			
Ecstasy			
No	64.0	21.0	15.0
Yes	70.9	3.9	25.2
Powder Cocaine			
No	65.2	21.0	13.8
Yes	64.0	4.9	31.1
LSD			
No	66.8*	19.1	14.1
Yes	32.5	8.0	59.5
Ketamine			
No	67.1***	18.9	14.0
Yes	15.9	8.9	75.2
Methamphetamine			
No	66.0	19.1	15.0
Yes	50.7	9.3	40.0
Honesty to Responses			
All	81.9*	5.8	12.3

	Did Not Read Question Carefully	Do Not Really Care About Survey	Other Reason
	Weighted %	Weighted %	Weighted %
Most	49.9	39.6	10.5
Less Than Most	25.0	33.0	42.0

Note. Some categories were collapsed in order to ensure enough participants per cell. 65.0% reported underreporting because they did not read the question carefully, 18.5% reported not really caring about the survey, and 16.5% reported underreporting for another reason.

*
p < .05,

**
p<.01,

***
p<.001