Woke About Coke? Investigating College Students Expectancies of Experimenting with Cocaine, in the Midst of the Fentanyl Epidemic

Anna Léa Juliette Lewi
University of Washington

Abstract

In 2017, the primary users of cocaine is the U.S. were individuals aged 18 to 25, and cocaine was the fourth most prevalent substance used on college campuses. Favorable depictions of cocaine use in the media contribute to these trends: the entertainment industry still advertises cocaine as a drug of privilege, partying, and performance. Cocaine's comeback on college campuses may also be related to the spread of prescription stimulants in recent years, which are often compared to recreational cocaine. This project tests the hypothesis that college students hold a very salient and positive image of what experimenting with cocaine looks like. I also hypothesize that students are unaware of the risks associated with experimenting with cocaine today. I use an online survey adapted from the ''Prototype-willingness model" (PWM), in order to measure college students' expectancies regarding the outcomes of experimenting with cocaine. Expecting positive outcomes from experimenting with cocaine indicates the favorability of cocaine's social image, which is positively correlated with willingness to engage in it. The study results suggest that the social image of cocaine is favorable on college campuses today and that students aren't aware of the risks associated with experimenting with the substance

Author's Note

This research paper was written originally for the purpose of an Honors Thesis within the Department of Sociology of the University of Washington.

The contents of the paper have not been published elsewhere nor are they under consideration for publication at another journal.

This research paper received IRB approval. The study reference is STUDY00006616. Contact information:

annalewi98@gmail.com; (415-638-7060). Mailing address: 1673 Bush Street, 94109 San Francisco CA

Introduction

According to the United Nations' *World Drug Report 2019* (United Nations publication: 29), individuals aged 18-25 in 2017 were the biggest consumers of cocaine, just like they have been the main victims of IMF-overdoses. Consequently, the UN report summarizes these mirroring trends by finding that:

"In the United States, overdose deaths attributed to cocaine use have also been increasing (doubling over the period 2007–2017), especially since 2014. However, this increase has been largely attributed to deaths involving cocaine and opioids, in particular synthetic opioids (fentanyl and analogues). This is in line with reports of cocaine being mixed or adul- terated with fentanyl and its analogues in the United States." (United Nations publication: 30).

In the midst of the IMF epidemic, *Monitoring The Future* released data on the top-four altering substances most frequently used by college students annually in 2017: alcohol (75.8%), marijuana (38.3%), Adderall (9.4%), and cocaine (4.8%)(Schulenberg, John E., et al, 2018: 407, 1). Evidence continues to show that cocaine is prevalent among young people and even on college campuses today, despite its increased dangerousness. Such rates could be explained by the consistent depiction of cocaine as a drug of party and luxury, still to this day. This persistence may also be attributed to the increased use of prescription stimulants, such as Adderall, which may be perceived as similar to cocaine because they are both Schedule II drugs and of stimulating nature. The same survey further finds that cocaine use has been increasing, and that personal disapproval of cocaine use has been declining over the last five years among young adults, which "likely reflects a generational forgetting of the dangers of cocaine by cohorts that are further and further from the peak of the cocaine epidemic in the mid-1980s" (Schulenberg, John E., et al, 2018:245, 1).

Monitoring the Future (Schulenberg, John E., et al, 2018, 1) captured the beliefs of different age groups of young adults without specifically collecting information on college students. In the scientific literature as a whole, there is a lack of a recent assessment of the perception of experimental cocaine use of college students. It is especially crucial to decipher whether college students expect experimental cocaine use to be beneficial, because it may lead to an openness to experiment (Gerrard et al., 2008:35, 2) at a time of peak-dangerousness.

This study filled this gap by measuring what college students expect the outcomes of using cocaine for the first time to look like. Such measurement was done using the Prototype-Willingness Model (Gibbons et al., 1995, 3), through an online survey administered to college students at the University of Washington. Students were asked to recall the image they hold of cocaine use through having to think about the typical student their age who just used cocaine for the first time. Then, a list of 16 possible outcomes of experimental cocaine use were given to them, some more positive and some more negative and harmful outcomes. Students were asked to rate the likelihood that the typical college student they are picturing will experience each of these, using a Likert-scale. If college students largely expected that experimenting with cocaine would result in beneficial outcomes, this population would be more willing to engage in the behavior, as predicted by the Prototype-Willingness Model (Gerrard et al., 2008, 2). Given the impromptu chance to use, they could be overlooking the risks of potentially fentanyl-cut cocaine, and use the positive social image they hold of cocaine instead to make a decision to use. By being the most recent assessment of cocaine's social image among college students, this study is the first step to effective prevention.

Literature Review: Cocaine and Young People

Data from 2019 finds that, as recently as in 2017, cocaine was overwhelmingly being used mainly by college-aged young adults (United Nations publication: 29). Previously, in December of 2016, the Substance Abuse and Mental Health Services Administration (Hughes et al., 2016, 4) had published state-estimates of past-year cocaine use among young adults. In the U.S., 1 out of 20 individuals aged 18-25 used cocaine in 2015. At the national level, this represented an unprecedented increase of 4.98% in past year cocaine use among this population from 2014 to 2015 (Hughes et al., 2016, 4). The report also noted that young individuals today are the primary targets of this increase and concluded that ''recent findings suggest that cocaine use may be re-emerging as a public health concern in the United States'' (Hughes et al., 2016:1, 4).

Because individuals attending college are commonly aged 18 to 25, the literature highlights similar trends in college settings. The national report *Monitoring The Future* (Johnston et.al, 2016, 5) looked at the substance-use rates of college students during this same period of time. The results are scary:

> "The trend line for college students showed an increase in cocaine use in 2014 as annual prevalence among college students increased a significant 1.7 percentage points to

> 4.4%. In 2015 this higher level of cocaine use among college students held. [...] So cocaine use is no longer declining among these young adults.''(Johnston et.al, 2016: 383, 5).

The survey summarized its findings on cocaine as of 2015 by signaling that ''cocaine use among college students is well below the 1980s and 1990s rates, but the significant increase among college students in 2014 (and confirmed in 2015) suggests a need to watch this drug carefully in the future'' (Johnston et.al, 2016: 386, 5). *Monitoring The Future* (Johnston et.al, 2016, 5) also assessed attitudes and beliefs of young people. It found that rates of disapproval of cocaine use among young people aren't as high as they were during the cocaine epidemic of the eighties and nineties, as ''all age groups had some modest falloff in disapproval since those peak levels were attained. [...] with some reduction in disapproval across increasing ages" (Johnston et.al, 2016: 254, 5). However, while the study did an excellent job of analyzing attitudes towards cocaine use among young adults, it only generated data in regards to different age groups, and did not perform such analysis in regards to college students' perceptions.

A quick look at what the entertainment industry has generated in recent years may provide an explanation to the ongoing trends regarding cocaine use among young people. First, movies contribute to the favorable portrayal of experimental cocaine use. In 2013, *The Wolf of Wall Street*, directed by Martin Scorsese, depicts the iconic Leonardo Dicaprio, snorting cocaine as he engages in various sexual activities, and uses the substance while staying at the top of his trading career. As recently as 2018, Freddie Mercury in *Bohemian Rhapsody*, directed by Bryan Singer, is shown throwing decadent parties, as indicated by the lines of cocaine on the tables. This is conducive to the image of cocaine as "central to a glamorous world of status and intrigue" (Erickson et al., 1987, 6). Alarmingly, research has demonstrated the driving effect of movie exposure on onset of risk behavior among young people (Dalton et al., 2003, 7).

Similarly, there is a persisting association of high social capital with recreational drug use patterns, especially in regards to cocaine use. The UN *World Drug Report* tells: 'cocaine use in the United States is comparatively more common among socially integrated users [...] In young adults aged 18–25, the use of cocaine is higher among those who are male, white and college graduate'' (United Nations publication:30). Further research on drug use as a whole notes that ''drug users of a community with abundant social capital [...] are thus more likely to exhibit controlled and responsible use'' (Erickson, P.G., Cheung, 1999:242, 8). The recreational or experimental user is *voluntaristic*

(Cheung, 2000:1697, 9), and has the skills necessary to use drugs without suffering their harmful effects. The paper *Two Women Who Used Cocaine Too Much* (Murphy, Rosenbaum, 1997, *10*) depicts how the story of cocaine use shifts dramatically based on capital. The unprivileged user unsurprisingly ends up injecting crack and winds up in the criminal justice system. In contrast, the privileged woman uses cocaine for a while, and eventually ends up cutting her consumption without much struggle, and building a good career later on (Murphy, Rosenbaum, 1997, *10*). These stereotypes have imprinted a positive connotation associated with recreational cocaine use in young adults' minds.

Cocaine and Adderall

Experimental use of cocaine may have been put in the shadows recently because the research-spotlight has been given to prescription stimulants like Adderall. Countless studies in the past few years have documented the widespread non-medical use of prescription stimulants on college campuses. As *Monitoring the Future* finds:

> ''annual prevalence of Adderall use without medical supervision was somewhat higher for college students (10.7%) than for non college respondents (7.1%), as has been the case for the last five years. The higher use by college students is very likely because this amphetamine drug, intended for the treatment of attention deficit hyperactivity disorder (ADHD), is mainly used by students to stay awake and alert in order to complete coursework and to study for exams.'' (Johnston et.al, 2016:366, 5).

The literature on Adderall further highlights how the drug is almost-always compared to cocaine. DeSantis and Hane (2010) find a number of quotes from students who justify their Adderall use by stating it is not as bad as cocaine. Though the comparison shames cocaine for being far more dangerous than Adderall, part of this sample perceives both drugs as serving the same purposes, when for example one states that "some kids take it [ADHD stimulants] to party longer or like coke [cocaine]''(DeSantis and Hane, 2010:35, *11*).

In summary, the substance-use literature critically lacks from data on experimental cocaine use among college students, at a time where the information should be abundant. It is possible that cocaine's case may have been overlooked in favor of the growing concern around the non-prescriptive use of amphetamines. Non-prescription stimulants are the focus because they are the scapegoat of a new drug scare (Reinarman, Craig, Levine, 1989, *12*), while cocaine isn't seen as big of a threat anymore. A drug scare may often shift scholars' focus away from investigating

simultaneous trends, despite the fact that research shows : ‘‘the annual prevalence of cocaine among young adults had reached a low point at 3.9% in 2013, but has since shown a rise to 5.0% in 2014 and 5.7% in 2015. This two-year increase is statistically significant, and suggests that cocaine may be making a comeback” (Johnston et.al, 2016:142, 5). “Generational Forgetting” (Johnston et.al, 2018:52, *13*) is defined as a process through which “many drugs have made a comeback years after they first fell from popularity, often because knowledge among youth of their adverse consequences faded as generational replacement took place”, and cocaine is cited as an example of such mechanism (Johnston et.al, 2018: 52*, 13*). But college students are tomorrow’s most educated and influential adults. By possibly letting them hold false beliefs on certain risky behaviors, we are putting society as a whole in danger.

The Prototype-Willingness Model

The Prototype-Willingness Model (PWM) (Gibbons et al., 1995*, 3*) is built on the idea that there are two different paths that influence the decision-making process of engaging in risk-behavior: the reasoned path, and the social reaction path (Gerrard et al., 2008, 2). The social-reaction path, in comparison to reasoned decision-making, is “much less deliberative—it acknowledges that much risk behavior is not intended, and that adolescents often find themselves in situations that facilitate (but do not demand) risky behaviors (e.g., an unsupervised party where alcohol and drugs are available)’’(Gerrard et al., 2008: 36, 2). The prototype-willingness model (PWM) further uses the concept of behavior as being unintentional to create the concept of behavioral willingness. Willingness, as used in the PWM, is defined as “an openness to engaging in risky behavior” (Gerrard et al., 2008: 35, 2). The role of behavioral willingness is decisive, as it is thought to determine whether young individuals will engage in risky-behavior, not their previous intention or plan to do so. (Gerrard et al., 2008, 2)

The PWM identifies behavioral willingness as being “image-based” (Gerrard et al., 2008: 41, 2). That is, willingness to engage in a risky-behavior in young individuals emerges according to the social image associated with it. Moreover, behavioral willingness and social image are tied through a positive correlation: the more favorable the image associated with a risk-behavior, the more willing would young individuals be to engage in it (Gerrard et al., 2008: 46, 2). Furthermore, for a social image to be created, there needs to be a consensus among young people regarding its characteristics. That is, PWM research finds that young people share “clear cognitive representations or social images (prototypes) of the type of person their age who engages in

specific risk behaviors'' (Gerrard et al., 2008: 36, 2). Drawing from these findings, it seems very likely that college students share a typology of the typical college student their age who experiments with the risky behavior of cocaine use, and that it would be easy for them to recall it when prompted to describe this person. As a result, one can ask college students to describe a typical college student who experiments with cocaine, and see what they expect this experience to look like. In order to assess prototype favorability, the possible outcomes of experimental cocaine use can further be qualitatively categorized as either positive or negative by the student who is using. By measuring how often college students report positive and negative outcomes, data on the favorability of the social image of experimental cocaine can be generated. In turn, these measures can give us the ability to infer college students' willingness to experiment with cocaine, and target preventive measures to point at specific widespread beliefs.

Fortunately for this present study, the reputation of the prototype-willingness model is well-established. In fact, over the years, it has been successfully used to test prototypes and behavioral willingness associated with a number of risky behaviors such as smoking (Gibbons et al., 1995b; Gibbons and Eggleston, 1996, *14*), contraceptive use (Gibbons and Gerrard, 1995, 3) or UV-exposure (Gibbons et.al, 2005, 15). A meta-analysis of 90 studies was performed in 2016 to measure the validity of its two primary constructs. Its first goal was to assess whether social image or prototypes were actually predictive of willingness across studies (Todd et al., 2016, 16). The results highlighted that the "prototype was a stronger predictor of willingness (r = .34) than intention (r = .25)" (Todd et al., 2016: 8, 16). A second key finding was that, when the predictive power of prototype similarity and favorability were assessed separately, "prototype favorability was a stronger predictor of willingness (r = .31) than intention" (Todd et al., 2016: 10, 16).

In light of the information gathered above, three research hypotheses were tested in this study. First, I hypothesized that college students would share a very salient social image of recreational cocaine use, that is, there would be consensus over what the typical user and their experience looked like. In order to prove this, college students as a group would need to take a strong stand when rating the likelihood that each outcome will occur. These clear-cut answers would indicate a clear-cut social image. Drawing from this, I further hypothesized that this social image of cocaine use would be favorable, and that college students would perceive the outcomes of cocaine as being significantly more positive than negative. Lastly, I believed that there would be differences among class status and among users and their non-

using peers in regards to what respondents thought the most common outcomes of experimental cocaine use would be.

Data & Methods

Method

This study used an online survey that was administered to 312 college students between the ages of 18 and 29, currently enrolled at the University of Washington. Recruitment of participants was done through posts on social media such as Facebook and Instagram, in addition to direct sampling from UW classes and face-to-face recruitment on campus premises. The sample in this study was a convenience sample.

The survey was created using Google Forms. It started with a brief description of the study, as well as a general description of the survey content to follow. Participants then answered a set of demographic questions: age, gender, race, and socioeconomic status. Past history of substance use was also assessed: students were asked to report their 30-day and lifetime use of alcohol, and of any other psychoactive substance separately. Singling out alcohol was done according to the belief that the vast majority of college students use alcohol as *Monitoring the Future* (Johnston et al., 2016, 5) shows, while it is less common to have experimented with other substances like marijuana or prescription stimulants. Questions about the last 30-days versus lifetime-drug use were also differentiated because a more recent drug use may generate different beliefs than experiences later in one's life. The core of the survey was inspired from the PWM guidelines on how to capture social perceptions using surveys. Participants were first faced with a prompt that followed indications on how to make young people recall the social image of a risky behavior (Gibbons, Gerrard, Lane, 2003, 17), which read: ''Take a moment to think about the typical college student your age who just used cocaine for the first time. We are not interested in anyone in particular, just in the typical college student your age". Following this prompt, the designers of the PWM recommend giving participants a list of adjectives meant to describe the "typical person" referred to in the prompt: "Respondents are then asked to evaluate this prototype using a list of from 6 to 20 adjectives (e.g., attractive, popular, inconsiderate), each with a scale from "not at all" to "very," (Gibbons, Gerrard, Lane, 2003, 17). Participants are further asked to rate the likelihood that the "typical person" will show these given traits, using a Likert-scale. This present study followed these guidelines closely, though several modifications were made to fit the research question and capture the data of interest. Participants were asked to indicate from not at all likely (1) to very likely (5),

how much they thought that a list of 16 outcomes would be experienced by a typical college student their age, who had just used cocaine for the first time. These were items that related to potential positive and negative outcomes associated with the experimental use of cocaine. As an example, students were asked to indicate how likely they thought that experimental cocaine use could result in experiencing an increase in energy, a decrease in appetite, or in having hallucinations. Each of these 16 outcomes was consistently experienced by recreational and experimental cocaine users in previous studies (van der Poel et al., 2009, 18; Zinberg, 1984, 19; Erickson et al., 1987, 6; Hammersley, Ditton, 1994, 20; Murphy, Reinarman and Waldorf, 1989, *21*; Cohen and Sas, 1994, *22*). The 16 outcomes tested are listed below:

1. "experiencing an elevated mood"
2. "feeling more relaxed"
3. "experiencing a controlled high"
4. "being more social/talkative"
5. "experiencing more mental awareness"
6. "feeling more energetic"
7. "experiencing some weight-loss"
8. ''experiencing feelings of paranoia''
9. ''having hallucinations''
10. ''becoming violent to themselves or others''
11. ''having an insomnia''
12. ''feeling a desire to use more cocaine''
13. ''feeling hungover the next day''
14. ''skipping class the next day''
15. ''experiencing an increased sexual arousal''
16. ''having an overdose''

Because some of these effects were rather immediate, and some took a few hours longer to appear, the distinction between outcomes happening "immediately after use" and "a few hours after use" was made in the survey prompt. Additionally, outcomes resulting from prolonged use belong to addictive patterns of use as opposed to experimental patterns, and these weren't the focus of this study. Thus, these long-term outcomes were excluded from the list.

Data Analysis: Cocaine's General Social Image

Survey responses were entered into the statistical software Stata. Survey responses that didn't meet the age and UW-enrollment criteria were deleted. 14 cases were also dropped because the respondents had answered "Neutral/I don't know" to all survey questions, indicating . 247 out of 312 surveys were thus kept for the analysis. I first generated descriptive statistics of the

demographic questions in the survey: mean age, gender, race and class status, as well as number of students having used alcohol in the past 30 days and in their lifetime, and number of students having used other psychoactive substances in the past 30 days and in their lifetime. (see Table A1). Next, the 5-point Likert-scale responses were collapsed : “Not at all likely” was merged with “Not likely”, and “Very likely” was merged with “Likely” to create a semantic differential, a method previously used to assess attitudes (Todd, Mullan, 2011, 23). The dichotomous variable “rating of likelihood’’ was thus created, taking two levels: “Not likely” and “Likely” for each of the 16 outcomes. At this point, responses having said ‘‘I don’t know/Neutral’’ for each outcome were coded as null and excluded from the rest of the statistical analysis.

Following this, t-tests were performed on the proportion of ‘‘Likely’’ and ‘‘Not likely’’ for each of the outcomes discreetly, in search for a significant difference between these proportions. A p-value of less than 0.05 for each t-test indicated that there was a significantly-greater proportion of students having said that an outcome was ‘‘Not likely’’ than “Likely” to happen, or the other way around. Furthermore, this meant that as a group, students had a clear image of whether an outcome was likely to occur or not, rather than having dispersed beliefs. After this step, these two proportions, for each of the 16 outcomes, went through a series of cross-tabulations designed to control for the possible influence of class status and previous history of substance use on overall rating of likelihood. In fact, while the direction of the correlation between SES and drug perception is debated, it is clear in the literature that there is a significant effect of family upbringing on drug-related attitudes (Humensky, 2010*, 24*). In regards to controlling for substance use history, once again the literature tends to go both way in predicting attitudes based on previous drug use, though a relationship has become evident (Merline et al., 2004, *25*). T-tests were performed, for the proportion of “Not likely” and “Likely” separately, for the different class status and for the different substance-use histories of the survey participants. A p-value of less than 0.05 indicated that there was a significantly-greater number of respondents having responded “Not likely” or “Likely” who belonged to a specific class or had a certain past-pattern of substance-use. Therefore, a low p-value indicated an effect of either class-belonging of history of use on current expectancies regarding experimental cocaine use.

The Outcome Expectancy Scale

The second part of the analysis aimed at finding out whether college students did in fact hold more positive than negative expectancies of the outcomes of experimenting with cocaine. The method was adapted from previous research using the PWM on measuring outcome expectancies in regards to risky behavior (Dal Cin et al., 2009, 26; Whitaker, Petróczi, and Backhouse, 2014, 27). In this present study, participants were asked to indicate from very unlikely (1) to very likely (5), how likely it was that a first-time cocaine user experience 16 potential positive and negative outcomes. For example, participants were asked to indicate how likely they thought that using cocaine for the first time could produce an elevated mood or a loss of appetite. Negative items were reversed so that a total outcome expectancies score could be calculated. Total outcome expectancies scores above the hypothetical mean (32) indicated more positive outcome expectancies.

Results: General findings

Post-screening procedures, there were 247 students for which the survey responses were analyzed. The mean age of the sample was 20.4 years old. The sample was composed mainly of females, Caucasian students, from a middle-class family upbringing. The exact breakdown of sample demographics, as well as the self-reported substance-use histories of students in the sample are detailed in Table 1.

Table 1: General Descriptive Statistics of the Sample

TOTAL SAMPLE	N = 247, UW Students, aged 18-29
Mean age	20.4
Gender	
Male	184
Female	61
Other/Prefer not to say	2
Race/ethnicity	
White/Caucasian	120
Hispanic/Latino	23
Black/African-American	8

Asian/Pacific Islander	76
Native-American/Alaskan Native	3
Other/Prefer not to say	17
Family upbringing	
Lower-class	19
Working-class	48
Middle-class	142
Upper-class	38
Past 30-day alcohol use	
Yes	176
No	61
Lifetime-alcohol use	
Yes	220
No	27
Past 30-day psychoactive substance use	
Yes	102
No	145
Lifetime-psychoactive substance use	
Yes	158
No	89

There were 14 out of 16 outcomes for which the proportion of students having rated them as "Likely" was significantly different that the proportion of students who said they were "Not likely" to occur. Only two outcomes didn't yield a significant difference between their two proportions, "becoming violent to themselves/others" and "experiencing a controlled high". All the other 14 outcomes generated a significant difference at a p value of 0.00, which indicates that there is a high consensus among students on the question of what will happen to their peer who is taking

cocaine for the first time. Moreover, this is an indication that cocaine use is a risky behavior that has a clear social image among college students, confirming that the PWM (Gibbons et al., 1995, 3) can be applied in this study, and the favorability of cocaine's social image may predict willingness to use.

The outcome that was reported as being the most likely to happen was ''experiencing an elevated mood'', with 89.5% of students deeming that it was "Likely" to happen from a first-time cocaine use. Following this outcome were ''feeling more energetic", with 89%, and being more social/talkative'' as well as "experiencing more sexual arousal", with an equal proportion of 86% of students deeming these as "Likely" to happen. Drawing from these results, it seems that the majority of college students think that one-time cocaine use results in beneficial outcomes. Furthermore, these results indicate that the social image of experimenting with cocaine is rather favorable.

On the other hand, the outcome that was reported as being the least likely to happen was ''wanting more cocaine'', with 77% of students deeming that it was "Not likely" to result from a first-time cocaine use. Following this outcome was ''feeling more relaxed'', with 59% of students, and ''having hallucinations'', with 52% of students deeming these as "Not likely" to occur. In addition, it is important to note that "having an overdose" was deemed "Not likely" by 51% of students, which also turned out to be significantly higher than the mean number of students in the sample. Drawing from these results, it seems that college students are unaware of the addictive powers of cocaine, despite it being a Schedule II drug, and is reported as highly addictive even by its recreational users (van der Poel et al., 2009, 18). Also, the second-least likely outcome being "feeling more relaxed" could indicate that cocaine is a drug that is perceived differently from substances such as alcohol or marijuana, which are most commonly-used for depressive purposes. In comparison, cocaine may be associated more with substances such as Adderall because of its perceived energetic benefits and its dissociation with relaxation.

Lastly, the data suggests that a one-time use of cocaine resulting in an overdose was seen as an unlikely turn of events by a majority of students (51%). This indicates that college students may not be aware of the risks that using cocaine, even once, represents today. The increased presence of fentanyl in the drug market in recent years, as well as the opioid crisis, are topics that are largely overlooked when discussing substance use on college campuses. Thus, such perceptions of cocaine, that are far from reality, may make sense in the context of a lack of information.

Differences between class status and previous substance use

Each proportion of students having responded "Likely" or "Not likely" was broken down for each of the 16 outcomes, and skimmed for significantly greater number of students belonging to a certain class status or with a specific history of substance use. Several significant differences were observed throughout responses in regards to class status. Specifically, in regards to a number of negative outcomes, the upper-class had significantly reported these as "Not likely" to occur, more than any other class. This finding could indicate that upper-class students potentially think they are ''immunized'' from the harmful effects of experimental cocaine. This may be due to them thinking their supply would be of higher-quality, or due to their greater access of resources in case of emergency. It could also be influenced by the upper-class potentially being around cocaine more than other classes, and this proximity biasing their perception. These findings are detailed in Table 2.

Table 2: Significant differences in responses among students, by class

Outcome	Out of the students who answered this outcome was "not likely", there was a significantly bigger proportion of:	Out of the students who answered this outcome was " likely", there was a significantly bigger proportion of:
"an increase in energy"	- Middle-class students more than any other class (p= 0.05)	N/A
"more mental awareness"	N/A	- Middle-class students less than any other class (p= 0.04)
"having hallucinations"	- Upper-class students more than any other class (p= 0.03)	- Upper-class students more than any other class (p= 0.05)
"becoming paranoid"	- Upper-class students more than any other class(p= 0.03)	N/A
"having an overdose"	- Upper-class students more than any other class (p=0.01)	- Upper-class students less than any other class (0.01)

N/A= No significant difference was found.

Looking at previous substance use, proportions of 13 out of the 16 outcomes tested had incorporated significantly greater numbers of respondents having had a specific history of substance use. These differences are detailed in Table 3. Overall, results shed light on how previous experimenting with drugs may impact how one approaches drugs currently, and how users may have preconceived ideas on the ways that drug use usually unfolds.

Table 3: Significant differences among student responses, by previous history of use

Outcome	Out of the students who answered this outcome was “not likely”, there was a significantly bigger proportion of:	Out of the students who answered this outcome was “ likely”, there was a significantly bigger proportion of:
”an increase in energy”	- Middle-class students more than any other class (p= 0.05)	N/A
”more mental awareness”	N/A	- Middle-class students less than any other class (p= 0.04)
”having hallucinations”	- Upper-class students more than any other class (p= 0.03)	- Upper-class students more than any other class (p= 0.05)
”becoming paranoid”	- Upper-class students more than any other class(p= 0.03)	N/A
”having an overdose”	- Upper-class students more than any other class (p=0.01)	- Upper-class students less than any other class (0.01)

Outcome	Out of the students who answered this outcome was “not likely”, there was a significantly bigger proportion of:	Out of the students who answered this outcome was “ likely”, there was a significantly bigger proportion of:
”an elevated mood”	N/A	- students having used alcohol in the last 30 days/in their lifetime(p=0.05 and p=0.04) - students having used other psychoactive substances in their lifetime (p=0.05)
”an increase in energy”	- students having used alcohol in the last 30 days/in their lifetime (p=0.00 and p=0.00) - students having not used other psychoactive substances in the last 30 days/in their lifetime (p=0.01 and p=0.00)	- students having used alcohol in the last 30 days/in their lifetime(p=0.00 and p=0.00) - students having used other psychoactive substances in the last 30 days/in their lifetime (p=0.00 and p=0.00)
”being more social/talkative”	- students having not used alcohol in the last 30 days/in their lifetime(p=0.00 and p=0.03) - students having not used other psychoactive substances in the last 30 days/in their lifetime (p=0.01 and p=0.01)	- students having used alcohol in the last 30 days (p=0.01) - students having used other psychoactive substances in the last 30 days/in their lifetime (p=0.00 and p=0.00)
”more sexual arousal”	- students having not used alcohol in the last 30 days/in their lifetime (p=0.00 and p=0.03)	- students having used alcohol in the last 30 days (p=0.01)

	- students having used other psychoactive substances in the last 30 days/ not used in their lifetime (p=0.01 and p=0.01)	- students having used other psychoactive substances in the last 30 days/in their lifetime (p=0.00 and p=0.00)
”more mental awareness”	- students having not used alcohol in the last 30 days/in their lifetime (p=0.00 and p=0.01) - students having not used other psychoactive substances in the last 30 days/in their lifetime (p=0.00 and p=0.00)	- students having used alcohol in the last 30 days/in their lifetime (p=0.00 and p=0.03) - students having used other psychoactive substances in the last 30 days/in their lifetime (p=0.00 and p=0.00)
”an decrease in appetite”	- students having used alcohol in the last 30 days (p=0.02) - students having used other psychoactive substances in the last 30 days/in their lifetime (p=0.02 and p=0.01)	N/A
”feeling more relaxed”	- students having used alcohol in the last 30 days/in their lifetime (p=0.00 and p=0.00) - students having used other psychoactive substances in the last 30 days/in their lifetime (p=0.00 and p=0.00)	- students having not used alcohol in the last 30 days/in their lifetime (p=0.00 and p=0.04) - students having not used other psychoactive substances in the last 30 days/in their lifetime (p=0.02 and p=0.00)
”having hallucinations”	- students having used alcohol in the last 30 days/in their lifetime (p=0.00 and p=0.00)	- students having not used alcohol in the last 30 days/in their lifetime (p=0.00 and p=0.00)

	- students having used other psychoactive substances in the last 30 days/in their lifetime (p=0.00 and p=0.00)	- students having not used other psychoactive substances in the last 30 days/in their lifetime (p=0.00 and p=0.00)
”becoming paranoid”	- students having used alcohol in the last 30 days (p=0.00) - students having used other psychoactive substances in the last 30 days/in their lifetime (p=0.00 and p=0.00)	- students having not used alcohol in the last 30 days/in their lifetime (p=0.00 and p=0.04) - students having not used other psychoactive substances in the last 30 days/in their lifetime (p=0.01 and p=0.00)
”becoming violent”	- students having used alcohol in the last 30 days/in their lifetime (p=0.01 and p=0.04) - students having used other psychoactive substances in the last 30 days/in their lifetime (p=0.01 and p=0.00)	- students having not used alcohol in the last 30 days/in their lifetime (p=0.00 and p=0.01) - students having not used other psychoactive substances in the last 30 days/in their lifetime (p=0.08 and p=0.00)
”having an overdose”	- students having used alcohol in the last 30 days/in their lifetime (p=0.00 and p=0.05) - students having used other psychoactive substances in the last 30 days/in their lifetime (p=0.00 and p=0.00)	- students having not used alcohol in the last 30 days (p=0.01) - students having not used other psychoactive substances in the last 30 days/in their lifetime (p=0.00 and p=0.00)
”skipping class the next day”	- students having used alcohol in the last 30 days (p=0.04)	- students having not used alcohol in the last 30 days (p=0.01)

	- students having used other psychoactive substances in the last 30 days/in their lifetime (p=0.04 and p=0.01)	- students having not used other psychoactive substances in their lifetime (p=0.01)
”being hungover the next day”	- students having used alcohol in the last 30 days (p=0.00) - students having used other psychoactive substances in their lifetime (p=0.04)	- students having not used alcohol in the last 30 days (p=0.02)

N/A= No significant difference was found.

The Outcome Expectancy Scale

The sample mean score on the scale was of 41.3 out of 64 (M= 41.29, SD= 9.99), with a minimum of 1 and a maximum of 58. The hypothetical mean being 32, students in the sample demonstrated significantly more positive outcome expectancies than negative (p=0.00). These results are in accordance with the rest of the data highlighted above, and are additional evidence that college students hold a positive social image of the experimental use of cocaine. There was no significant difference in the total outcome expectancies scores between class, history of substance use, or gender.

An alpha for this expectancy scale was also calculated. However, at first, two items had a negative correlation with the scale as a whole, because they didn’t follow the same pattern as the rest of the 14 items, and therefore were removed from the computing of alpha. “Feeling more relaxed” was removed because it was coded as a positive outcome but was actually identified as the outcome the least likely to happen. “A decrease in appetite” was also removed because its distinction between being a positive or negative outcome was thought to be too ambiguous, and the results on this outcome could have been interpreted in two ways. After removing the two negatively-correlated outcomes, the outcome expectancy scale generated an alpha of 0.76

Study Limitations and Directions for Future Research

The sample I used presents limitations at several levels. For convenience purposes, participants were limited to students from the University of Washington. While findings accurately depict the

beliefs of students in the Pacific Northwest, results may be less generalizable to other parts of the U.S. Notably, one may expect the attitudes of students at the University of Washington to be more liberal than other schools in the country. Another limitation of using the University of Washington only as a sample is that this location makes its students less likely to have ever interacted with cocaine than in other places where cocaine is more widely-used. Their history of exposure (or lack thereof) to the substance might have biased their current perception. A similar study would possibly get totally different answers at an institution in a state with particularly high prevalence rates of cocaine use. The social image of the "typical college student who just used cocaine for the first time" may shift greatly across the country as well.

A final note on the sample of college students used in this study is that the University of Washington is a public university. Results should be replicated in the future in community colleges and private schools in order to get a full picture of college students' perception of experimental cocaine use, regardless of the type of school they are enrolled in. Lastly, the survey needs to be replicated in colleges that have a different proportion of students coming from an upper-class background. In fact, this present study finds that the upper-class has different beliefs regarding cocaine, which adds on to the literature highlighting that cocaine use may be more prevalent in this social context.

The age-range targeted in this study, ages 18-29, is highly effective in capturing the older members of the so-called ''Generation Z''. However, I believe it would be beneficial to replicate the same study looking at current high school students. In fact, as the re-appraisal of recreational cocaine use was identified as a generational mechanism (Johnston et al., 2018: 52, 13), it seems likely that the increase in cocaine use and decreases in its disapproval that we see with today's generation of college students will be greater among high school students, who are even further away from the bad memories of the cocaine epidemic.

Lastly, in hindsight, it would have been enriching to ask participants if they had used cocaine especially as a part of the survey question on substance-use history. My study didn't aim at looking at the current perception of cocaine among past-users of the substance, but at the population of college students as a whole. However, I believe it would have interesting to simply have a glance at the beliefs of previous cocaine users in comparison with other substances and with non-users.

Conclusion

This research project was driven by several hypotheses. I believed that there was a consensus among college students regarding their social image of the experimental cocaine user their age. I thought that this image would be more positive than negative. Drawing from this, I hypothesized that college students would expect positive outcomes to result from experimenting with cocaine, and wouldn't be aware of the risks that cocaine use encompasses today. And last, I envisioned that students from different class status, and students with different past substance-use patterns, would generate different responses. The study results highlighted in this paper provided support for each of these hypotheses. College students do seem to share a salient social image of recreational cocaine use, as they held significantly strong opinions regarding 14 out of the 16 side-effects tested. This social image is largely favorable, given the very high proportion of students who associated positive outcomes with recreational cocaine use. Conversely, the risk of addiction, overdosing and other negative outcomes are significantly not associated with experimental, use as predicted. Lastly, there were a number of significant differences in responses when comparing class status and users versus non-users in this sample, which indicates that these two factors continue to influence perception on substance use today.

The study results also generated several findings that I hadn't foreseen, but that do however follow the trends found in the literature and fit the narrative of this study. First, cocaine is understood as not providing relaxation benefits, but as enhancing physical, psychological, and social performance. Given that the same conclusions have been drawn for the purpose of prescription stimulant use (DeSantis and Hane, 2010, 11), and as we see a steady increase in the use of these amphetamines among college students (Johnston et al., 2016:366, 5), it is safe to hypothesize that we could see the same increase in cocaine use in the next years. Therefore, cocaine use among college students greatly needs to be addressed now, before a possible escalation in image-favorability, and in use, begins.

Moreover, the results yielded by this study have great potential for a future implementation into prevention initiatives. In fact, the results highlight that the recreational use of cocaine has a rather favorable image on large college campuses like the University of Washington, which preventive measures ought to break. I envision that such an initiative could attempt to alter the favorable image that cocaine has in college students' minds. In the past, research on the PWM has been successful in altering the social image of risky behaviors to reduce willingness to engage in these dangerous situations. Specifically, an intervention aimed at

reducing the use of tanning booths by college students used ‘‘UV photography to highlight the damage to facial skin caused by previous UV exposure’’, which resulted in significantly ‘‘less favorable tanning attitudes and greater PV to photoaging, less favorable tanner prototypes, and marginally less willingness for UV exposure’’ for students exposed to this altered-image of the risky behavior (Gibbons et al., 2005: 360, 15). I propose using the same mechanism and provide students with a range of actual depictions of experimental cocaine use’s outcomes, ranging from tables highlighting the content of cocaine today, depicting overdose rates, as well as testimonials of recreational cocaine users. Today, sociological research continues to provide evidence that the behavior of young people is highly influenced by the behavior of their same-age peers (Suh et al., 2017, 28), which provides some promising conclusions when applied to my study as well. Capturing the thoughts of a sample of college students in the Pacific Northwest and effectively reducing risk-behavior may indeed start a cascade of idea-reshaping. Individuals in our sample will have friends from other colleges, peers of the same age in other states, and they may influence the view of these familiar others as well.

References

Centers for Disease Control and Prevention, National Center for Health Statistics. Multiple Cause of Death 1999-2017 on CDC WONDER Online Database, released December, 2018

Cheung, Yuet W. "Substance abuse and developments in harm reduction." Cmaj 162, no. 12 (2000): 1697-1700.

Cohen, Peter, and Arjan Sas. "Cocaine use in Amsterdam in non deviant subcultures." Addiction Research 2, no. 1 (1994):7 1-94

Dal Cin, S., Worth, K. A., Gerrard, M., Gibbons, F. X., Stoolmiller, M., Wills, T. A., & Sargent, J. D. (2009). Watching and drinking: Expectancies, prototypes, and peer affiliations mediate the effect of exposure to alcohol use in movies on adolescent drinking. Health psychology: official journal of the Division of Health Psychology, American Psychological Association, 28(4), 473

Dalton, Madeline A., James D. Sargent, Michael L. Beach, Linda Titus-Ernstoff, Jennifer J. Gibson, M. Bridget Ahrens, Jennifer J. Tickle, and Todd F. Heatherton. "Effect of viewing smoking in movies on adolescent smoking initiation: a cohort study." The Lancet 362, no. 9380 (2003): 281-285. .

DeSantis, Alan D., and Audrey Curtis Hane. "“Adderall is definitely not a drug”: justifications for the illegal use of ADHD stimulants." Substance use & misuse 45, no. 1-2 (2010): 31-46.

Erickson, Patricia G., and Yuet W. Cheung. "Harm reduction among cocaine users: reflections on individual intervention and community social capital." International Journal of Drug Policy 10, no. 3 (1999): 235-246.

Erickson, P. G., Adlaf, E. M., Murray, G. F., & Smart, R. G. (1987). The steel drug: Cocaine in perspective. Lexington Books/DC Heath and Com.

Gerrard, M., Gibbons, F. X., Houlihan, A. E., Stock, M. L., & Pomery, E. A. (2008). A dual-process approach to health risk decision making: The prototype willingness model. Developmental Review, 28(1), 29-61.

Gibbons, F. X., & Eggleston, T. J. (1996). Smoker networks and the" typical smoker": A prospective analysis of smoking cessation. Health Psychology, 15(6), 469.

Gibbons, F. X., & Gerrard, M. (1995). Predicting young adults' health risk behavior. Journal of personality and social psychology, 69(3), 505.

Gibbons, Frederick X, Gerrard, Meg, Lane, David J, Mahler, Heike

IM & Kulik, James A. 2005. Using UV photography to reduce use of tanning booths: a test of cognitive mediation. Health Psychology 24: 358.

Hammersley, Richard, and Jason Ditton. "Cocaine careers in a sample of Scottish users." Addiction Research 2, no. 1 (1994): 51-69.

Hughes, A., Williams, M.R., Lipari, R.N. and Van Horn, S. State estimates of past year cocaine use among young adults: 2014 and 2015. The CBHSQ Report: December 20, 2016. Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration, Rockville, MD.

Humensky, Jennifer L. "Are adolescents with high socioeconomic status more likely to engage in alcohol and illicit drug use in early adulthood?." Substance abuse treatment, prevention, and policy 5, no. 1 (2010): 1.

Johnston, Lloyd D., Patrick M. O'Malley, Jerald G. Bachman, J John E. Schulenberg, and Richard A. Miech. "Monitoring the Future national survey results on drug use, 1975-2015: Volume II, college students and adults ages 19-55." (2016).

Johnston, Lloyd D., Richard A. Miech, Patrick M. O'Malley, Jerald G. Bachman, John E. Schulenberg, and Megan E. Patrick. "Monitoring the Future national survey results on drug use, 1975-2017: Overview, key findings on adolescent drug use." (2018).

Merline, Alicia C., Patrick M. O'Malley, John E. Schulenberg, Jerald G. Bachman, and Lloyd D. Johnston. "Substance use among adults 35 years of age: prevalence, adulthood predictors, and impact of adolescent substance use." American Journal of Public Health 94, no. 1 (2004): 96-102.

Murphy, S. B., Reinarman, C., & Waldorf, D. (1989). An 11-year Follow-up of a Network of Cocaine Users. British Journal of Addiction, 84(4), 427-436.

Murphy, S., & Rosenbaum, M. (1997). Two women who used cocaine too much. Crack in America: Demon drugs and social justice, 98-112.

Nolan ML, Shamasunder S, Colon-Berezin C, et al. Increased presence of fentanyl in cocaine-involved fatal overdoses: implications for prevention. J Urban Health. 2019.

Reinarman, Craig, and Harry G. Levine. "Crack in context: Politics and media in the making of a drug scare." Contemp. Drug Probs. 16 (1989): 535.

Schulenberg, J. E., Johnston, L. D., O'Malley, P. M., Bachman, J. G., Miech, R. A., & Patrick, M. E. (2018). Monitoring the Future National Survey Results on Drug Use, 1975-2017.

Volume II, College Students & Adults Ages 19-55. Institute for Social Research.

Seth, P., Scholl, L., Rudd, R. A., & Bacon, S. (2018). Overdose deaths involving opioids, cocaine, and psychostimulants—United States, 2015–2016. Morbidity and Mortality Weekly Report, 67(12), 349.

Suh, Chan S, Shi, Yongren & Brashears, Matthew E. 2017. Negligible Connections? The Role of Familiar Others in the Diffusion of Smoking among Adolescents. Social Forces 96: 423-448.

Todd, Jemma, Emily Kothe, Barbara Mullan, and Lauren Monds. "Reasoned versus reactive prediction of behaviour: A meta-analysis of the prototype willingness model." Health psychology review 10, no. 1 (2016): 1-24

Todd, J., & Mullan, B. (2011). Using the theory of planned behaviour and prototype willingness model to target binge drinking in female undergraduate university students. Addictive behaviors, 36(10), 980-986

van der Poel, A., Rodenburg, G., Dijkstra, M., Stoele, M., & van de Mheen, D. (2009). Trends, motivations and settings of recreational cocaine use by adolescents and young adults in the Netherlands. International Journal of Drug Policy, 20(2), 143-151.

Whitaker, L., J. Long, A. Petróczi, and S. H. Backhouse. "Using the prototype willingness model to predict doping in sport." Scandinavian journal of medicine & science in sports 24, no. 5 (2014): e398-e405.

Zinberg, N. E. (1984). Drug, set, and setting: The basis for controlled intoxicant use.