# Influences on adolescent substance use and attitudes towards the D.A.R.E. prevention program

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**Abstract**

Numerous studies indicate high adolescent alcohol, legal drug, and illegal drug use, which can be detrimental to their health and well-being. D.A.R.E., a school-based prevention education program in many K-12 schools throughout the country, hopes to educate students on the harms of drug and alcohol use and equip them with the needed tools to avoid use. The purpose of this study is to understand behaviors relating to substance use of those who experienced the D.A.R.E. program compared to those who did not, as well as to understand attitudes towards D.A.R.E. This study also seeks to understand how sensation-seeking tendencies, attitudes, perceived behavioral control, and perceived social norms impact an individual's post D.A.R.E. behaviors. This study utilized an online survey, with mostly quantitative questions and some open-ended (qualitative) questions. Results indicate that experience with D.A.R.E. was not a significant predictor of substance use within the past two weeks or intentions for substance use in the next two weeks. Attitudes were also not a significant predictor, but perceived behavioral control and social norms were until sensation-seeking was added to the model, as this was the most significant predictor of substance use behaviors. Attitudes towards the program were mixed between positive, negative, and neutral, but many respondents pointed out the use of fear appeals in the program.

**Influences on adolescent substance use and attitudes towards the D.A.R.E. prevention program**

According to the Centers for Disease Control and Prevention (CDC), substance use "refers to the use of selected substances, including alcohol, tobacco products, drugs, inhalants, and other substances that can be consumed, inhaled, injected, or otherwise absorbed into the body with possible dependence and other detrimental effects" (CDC, 2023a). Due to the various negative health effects of substance use, the legal age for alcohol and some drugs is 21 in the United States, and many drugs are illegal regardless of age. Throughout this study, substances are split into the categories of alcohol, legal drugs, and illegal drugs not used for medical purposes. Despite regulations on underage use, the U.S. Department of Health and Human Services (2024) found that 5.8 million youth between 12 and 20 reported drinking more than "just a few sips" of alcohol in 2022. Further, when adolescents consume alcohol, they drink more than adults; 90% of alcohol consumed by adolescents was consumed by those who binge drink. Additionally, legal drugs include nicotine, tobacco, marijuana (in some states), and other smoking or e-cigarette products. However, in 2023, 12.6% of high school students reported current tobacco use in any form within the past 10 days, 10% of which came from e-cigarettes (CDC, 2023b). In 2019, 37% of high school students reported using marijuana at least once in their lifetime and 22% said they used it within the past 30 days (CDC, 2021). Even illegal drug use is fairly common among adolescents. According to the CDC (2022), 15% of high school students reported using cocaine, inhalants, heroin, methamphetamines, hallucinogens, or ecstasy at least once in their lifetime and 14% of students reported misusing prescription opioids.

The prevalence of adolescent substance use is problematic when considering the negative effects the substances have. While the CDC (2024a) explains that alcohol in moderation is fine,

binge drinking or drinking by anyone under the age of 21 can be risky. Some of the short-term health effects of alcohol use include injuries or poor decision making, like driving under the influence, due to alcohol's disinhibiting effects on cognitive and motor skills, as well as alcohol poisoning. Long-term health risks include high blood pressure, heart or liver disease, several forms of cancer, mental health issues, alcohol use disorders/addiction. Additionally, adolescent drinking can lead to decreased performance in school, and it can negatively affect brain development (U.S. Department of Health and Human Services, 2024). Legal and illegal drugs have many similar effects, like increased risk for mental health issues and substance use disorders both during adolescence and into adulthood. Furthermore, tobacco can cause numerous forms of cancer, methamphetamine can cause severe dental health problems, opioids can cause overdose, marijuana can reduce coordination and memory, and inhalants can damage cells (CDC, 2021; U.S. Department of Health and Human Services, 2022). Substance use may also increase an individual's likelihood of being a victim of sexual or interpersonal violence (CDC, 2024a; U.S. Department of Health and Human Services, 2022; U.S. Department of Health and Human Services, 2024).

Given the prevalence of adolescent substance use and the negative effects outlined, researchers have considered some of the potential causes for substance use. Past research suggests that adolescent and teenage years are a time where many individuals make risky decisions, like substance use, to establish independence or to simply try new things. Additionally, many teens may engage in these risky behaviors because of peer pressure, stress, and not understanding the effects of substance use (CDC, 2021; U.S. Department of Health and Human Services, 2024). The CDC (2022) expands upon this, claiming that stress is one of the main risk factors for adolescent substance use along with family history of substance use, lack of

familial support, mental health issues, childhood trauma, and preexisting behavioral or educational challenges in school which are likely worsened by substance use.

To mitigate the harmful effects of substance use among adolescents, and hopefully negate these risk factors, many school systems have implemented prevention courses, like the Drug Abuse Resistance Education (D.A.R.E.) program. D.A.R.E. is the most prevalent school-based substance abuse prevention education program in the United States (Birkeland et al., 2005). Founded in 1983 by the Los Angeles Police Department, D.A.R.E.'s current mission is to teach students "good decision-making skills to help them lead safe and healthy lives" (D.A.R.E. America, n.d.-b). The program's primary goal is to make students feel prepared to avoid peer pressure relating to drugs, alcohol, gangs, and violence. It is taught by law enforcement officers who work with local agencies and school systems to implement and tailor the broader, decentralized curriculum. The curriculum has been developed by the White House Office of National Drug Control Policy, U.S. Drug Enforcement Administration, National Institute on Drug Abuse, various accredited universities, and drug abuse and prevention efforts.

The purpose of this study is to understand behaviors relating to substance use of those who experienced the D.A.R.E. program compared to those who did not, as well as to understand common attitudes towards D.A.R.E. This study also seeks to understand how sensation-seeking tendencies, attitudes, perceived behavioral control, and perceived social norms impact an individual's post D.A.R.E. behaviors. In this paper, I will first outline current research on D.A.R.E. and define the relevant theoretical framework incorporated into this study, I will then explain the methodology used to evaluate individuals' experiences with the D.A.R.E. program and substance use, highlight key findings, and include potential limitations and implications of this study.

## Literature Review

### D.A.R.E.

While D.A.R.E. is the most popular school-based prevention program in the United States, it has long been criticized by the public for being ineffective at creating a long-lasting change in students' knowledge, attitudes, and behavior surrounding substance use (Birkeland et al., 2005; Knopf, 2017; West & O'Neal, 2004). However, scholarly research on the effectiveness of the program has indicated rather mixed results, meaning that some studies find D.A.R.E. to be ineffective while others find it effective. For example, West and O'Neal (2004) argue that in their review of 11 studies, the six that reported positive results did not have effects that varied significantly enough from what might occur naturally to be considered anything more than minimally effective. In response to this evidence that the program was not largely effective, D.A.R.E. adopted the "keepin' it REAL program" (kiR)— a preexisting, evidence-based program supported by the Substance Abuse and Mental Health Administration's National Registry for Evidence Based Programs and Practices— to develop improved middle school curriculum in 2009 and elementary school curriculum (fifth and sixth grades) in 2012 (Caputi & McLellan, 2017; Knopf, 2017).

The purpose of the kiR program was to teach children that they can "Refuse, Explain, Avoid, and Leave" drug offers by providing students with more opportunities to learn from the officers and more time to work directly with classmates (Knopf, 2017). Research on the updated curriculum by Hansen et al. (2023) suggests that kiR successfully prevented the onset of substance use during a 30-day period during the program and one year after the program for elementary school students. This study also determined that kiR positively affected student knowledge and opinions on the consequences of substance use, behavioral intentions,

perceptions of social norms, and confidence in avoiding peer pressure. However, this study was limited in that the substance use prevalence for participants in this sample was very low, likely because of age, and it only measured effects immediately following the program and one year later.

Research indicates that these inconsistent findings are largely due to the non-standardized methodology and measures of effectiveness (Caputi & McLellan, 2017; Knopf 2017). Further, D.A.R.E. President and CEO, Frank Pegueros, argues that it is very difficult to prove effectiveness, even with the "new" D.A.R.E., kiR, saying:

> We were relieved, because we thought, "We're finally going to get an elementary school curriculum that can be evaluated." But it was not going to happen. It's virtually impossible to show positive outcomes with an elementary school program, because the use of substances is so low… We had positive outcomes for four years, but it diminished, and by the seventh year, there were no observable positive outcomes… four years of positive outcomes are still good. But the methodology wouldn't allow for anything other than a seven-year goalpost. (Knopf, 2017, p. 4)

This is like what Hansen et al. (2023) identified as a limitation to their study; while young children like elementary schoolers need to learn about how to avoid substance use, there typically are not high rates prior to the program of use to compare against after the program. It is therefore difficult to evaluate effectiveness for both of these reasons.

Regardless of inconsistent findings, Birkeland et al. (2005) argue that it is unreasonable to expect that one intervention is enough to create long-lasting effects on substance use behaviors when there are so many societal and cultural pressures to use substances. They explain that the program has other important positive effects, like connecting students to police officers in their

community, that make the program worthwhile. Wagner et al. (2004) explained additional benefits of school-based substance use programs like D.A.R.E. These programs allow schools to intervene on student substance use, potentially even before it happens, allowing them to help more than just students who are struggling through a preventative approach rather than a reactive approach. Programs are most successful when they explain the consequences of use and the benefits of the program's suggested behaviors, give students the skills needed to avoid use, occur on a regular basis, have well-trained instructors with well-developed curriculum, directly engage students, and connect students with their family and community.

There is, then, a gap in existing research on D.A.R.E. kiR's long-term effectiveness years after the program, such as into young adulthood. Additionally, more research exists on the old D.A.R.E. than the newer D.A.R.E. program that adolescents today are experiencing. This study seeks to learn more about the long-term effects of D.A.R.E. kiR, the version of D.A.R.E. that most current college-aged students would have experienced in their K-12 education. As there are no consistent program evaluation methods, this study incorporates the Theory of Planned Behavior, sensation-seeking, and fear appeals to gain a more well-rounded comparison of D.A.R.E. and substance use perceptions and experiences.

**Theory of Planned Behavior**

The Theory of Planned Behavior (TPB) is frequently used to predict adolescent substance use. The theory proposes that behavior is primarily determined by behavioral intention and perceived behavioral control. Behavioral intention is determined by attitudes; perceived social norms, also known as subjective norms; perceived self-efficacy; and perceived behavioral control (Armitage et al., 1999; Lin et al., 2021; Norman & Conner, 2006; Zhao et al., 2020). Armitage et al. (1999) argue that perceived behavioral control differs from self-efficacy and

should be considered separately within the TPB, but many scholars still combine the two forms of control beliefs. Perceived behavioral control is how an individual believes they can control external factors that affect behavior, whereas self-efficacy is how an individual believes they have control over themselves. Norman and Conner (2006) and Zhao et al. (2020) each argue that while the TPB is helpful to understanding and predicting behavior, the most commonly used model excludes key factors. Norman and Conner (2006) explain the importance of considering previous behaviors, as research indicates that when someone repeatedly does a behavior, their cognitive processing of the behavior decreases, meaning that their attitudes, perceived norms, self-efficacy, and behavioral control are less important behavioral predictors. Zhao et al. (2020) expand subjective norms to include descriptive norms (behaviors of those around the individual) and injunctive norms (the attitudes about the behavior from those around the individual). They argue that perceived social norms are complicated and vary based on what an individual notices, so both types of subjective norms should be directly addressed in the TPB.

Lin et al. (2021) explain how the TPB can be used as a framework to create effective substance use prevention programs by directly addressing these variables to shape how students feel about substance use. Studies indicate significant positive relationships between both attitudes and social norms and behavioral intentions and significant negative relationships between perceived behavioral control and behavioral intentions (Lin et al., 2021; Norman & Conner, 2006; Zhao et al., 2020). Correlations between subjective norms and self-efficacy have also been found. Another key relationship in the TPB is the correlation between behavioral intention and behavior (Armitage et al., 1999). These relationships indicate that these factors control behavioral intention, and therefore behaviors, so messages that address these things can decrease the likelihood of adolescent substance use. Research also indicates that when applying

TPB variables to substance use, they may differ depending on the type of substance. For example, Armitage et al. (1999) found that alcohol consumption was regarded with more positive attitudes and more favorable social acceptability than cannabis use, but participants still had a high self-efficacy for cannabis despite these things. The current study seeks to understand if factors involved with the TPB were addressed by D.A.R.E. and how they might impact individuals' experiences with substance use.

**Sensation-Seeking Scales**

Behavioral decision-making is also frequently affected by personality variables. Sensation-seeking is widely regarded by scholars as a major personality contributor to risky decision making. Sensation-seeking tendencies are "the seeking of varied, novel, complex, and intense sensations and experiences, and the willingness to take physical, social, legal, and financial risks for the sake of such experience" (Zuckerman, 1994, p. 27, as cited in Lauriola et al., 2014). According to Charles et al. (2017), research indicates a relationship between high sensation-seeking tendencies and frequent substance use, and even substance abuse disorders. They also found that higher levels of preadolescent sensation-seeking increase the chances that the individual will use substances by the time they are 15. In their research on an anti-drug campaign's effect on high sensation-seeking and low sensation-seeking adolescents, Palmgreen et al. (2007) had similar findings where low sensation-seekers reported low drug use and high sensation-seekers reported higher initial drug use. The high sensation-seekers' use, however, decreased with the program. This indicates that prevention programs have the ability to change behaviors by targeting those who are more likely to make risky decisions because of their high sensation-seeking personality. Sensation-seeking scales involve questions to gauge individuals'

levels of sensation-seeking and are incorporated into this study to see how risk-taking personalities impact perceptions and experiences with D.A.R.E. and substance use.

**Fear Appeals**

Substance use prevention programs and campaigns frequently implement fear appeals (Simpson, 2017). Witte (1994) defined fear appeals as persuasive messages that highlight a threat to generate the emotion fear, but that then show possible solutions to the threat. According to Witte's extended parallel processing model (EPPM), fear is affected by the audience's perceptions of threat and efficacy that they gain from a message. Threat consists of severity, which is the perception of the size of the threat, and susceptibility, which is the perception of an individual's risk of facing the threat. Efficacy, on the other hand, consists of response efficacy, the perceived effectiveness of recommendations to lessen the threat, and self-efficacy, the perceptions an individual has about their ability to implement the recommendations (recall self-efficacy from TPB). Key to the EPPM and the successful use of fear appeals is the greater emphasis on effectiveness than threat messages, as this fosters danger control processes in which individuals respond to the threat by adopting recommendations. In substance use prevention programs that provide recommended behaviors, like D.A.R.E., danger control processes are preferable to fear control processes in which the individual focuses on controlling their fear through behaviors like message suppression, reappraisal, and denial because it is positively related with intentions to change behavior (Cho & Salmon, 2006; Keller & Murphy, 1999; Moussaoui et al., 2021; Ruiter et al., 2001; Witte, 1994).

Though the phrase "fear appeals" may have a negative connotation initially, it is important to understand that while fear appeals may be inappropriate in health care when they are based on nonfactual evidence, they can be effective when they are based in evidence and

include efficacy messages with the threat to promote healthy behaviors (Simpson, 2017). The preceding research does not directly connect fear appeals and D.A.R.E., but because they are so commonly used in various types of anti-substance messages, I am curious to see if past students of D.A.R.E. express feelings of fear and self-efficacy in their descriptions of the program.

## Research Questions

Based on the primary purpose of this study and the existing literature related to this topic, I pose the following research questions:

*RQ1: How does experience with D.A.R.E. affect behaviors relating to substance use?*

*RQ2: How do attitudes, norms, and perceived behavioral control predict substance use behaviors?*

*RQ3: What is the influence of sensation-seeking tendencies on an individual's post-D.A.R.E. behaviors?*

*RQ4: What are people's attitudes towards the program, whether they experienced the program or have simply heard of it? Do people who have experienced the program express and recall the use of fear (i.e. feeling scared)?*

## Methods

To address these research questions, I conducted a primarily quantitative online survey, with some qualitative questions throughout.

### Ethical Considerations

Prior to being published, this survey was approved by the University of Mary Washington's Institutional Review Board for research involving human participants. There were no direct benefits to participants, but the risks of participation were minimal with potential for

only minor discomfort while discussing substance use. Participants were told that they could skip questions or stop taking the survey without penalty should they become uncomfortable. Because this survey asks about underage and illegal substance use, all responses are anonymous and there was no specific identifiable information collected in this study. The informed consent at the beginning of the survey outlined all this information for participants, as well as a vague outline of what types of questions they may be asked. The specific purpose of this research, understanding D.A.R.E., was not explicitly stated until the debriefing at the end, where all participants were given the opportunity to withdraw their data without penalty.

**Sampling and Participants**

This study utilized convenience and snowball sampling. I posted the survey to my social media accounts and asked people involved in my classes and extracurriculars to participate. Participants were also asked to share this study with others. The only criteria for participation was that participants had to be between the ages of 18 and 24. This age range is important because this demographic is likely out of the K-12 education system, but they are not so far removed that they have no memory of their D.A.R.E. experiences or experienced the old D.A.R.E. Anyone who answered the screening question at the start of the survey saying that they are "over 24" was immediately taken to the end of the survey without answering questions about their substance use and D.A.R.E. experiences.

The total sample size of this survey was $N = 125$. However, only 62.4% ($n = 78$) of participants completed the survey. Incomplete responses were still used, and SPSS did not include blank variables in data analysis. Respondents' self-identified as 71.4% female ($n = 55$), 23.4% male ($n = 18$), 3.9% non-binary ($n = 3$), and 1.3% genderfluid ($n = 1$). Additionally, 83.5% of participants self-identified as white/Caucasian ($n = 66$), 3.8% identified as Hispanic (*n*

= 3), 2.5% identified as Asian/Pacific Islander (*n* = 2), 1.3% identified as Black or African American (*n* = 1), 5% identified as multiple ethnicity/other (*n* = 4), and 3.8% of respondents preferred not to say (*n* = 3).

## Measures

This study involved several variables, so the survey was designed to assess each variable as it applies to each participant. This means that there were some variables that each participant received all the same questions for, like those relating to TPB, but there were also some sections that changed depending how the participant answered specific questions. This is particularly relevant for comparing those who experienced D.A.R.E. and those who did not.

### *D.A.R.E. Experiences*

After the screening question for age, participants were asked: "Did you go through D.A.R.E. in any part of your K-12 education?" Participants who answered "yes" were then asked when they experienced the program: K-4, 5-6, 7-8, and/or 9-12. Those who answered "no" were asked if they have heard of D.A.R.E. before, and if so, they were shown open-ended questions about how and what they have heard about D.A.R.E. 60% of participants experienced D.A.R.E. (*n* = 74), while 40% did not (*n* = 50). Of those who experienced D.A.R.E., 22 respondents said they went through the program in K-4, 50 said 5-6, 19 said 7-8, and 7 said 9-12. Of those who did not experience D.A.R.E., 74% of respondents said they have heard of it (*n* = 37) and 26% had not (*n* = 13).

### *Behaviors With and Without D.A.R.E.*

The questions participants were shown for this variable were controlled by their answer to if they experienced D.A.R.E. However, all participants were given a definition (as stated in the Introduction) of substance use that explained the distinctions between alcohol, legal drugs, and

illegal drugs. Questions in this section were repeated three times so that each substance (alcohol, legal drugs, illegal drugs) was addressed individually.

**Behaviors with D.A.R.E.** Those who experienced the D.A.R.E. program were asked the following "yes" (1) or "no" (2) questions about their behaviors before D.A.R.E. relating to alcohol ($M$ = 1.92, $SD$ = 0.21), legal drugs ($M$ = 1.96, $SD$ = 0.14), and illegal drugs ($M$ = 2, $SD$ = 0): "Prior to your D.A.R.E. experience, did you consider [consuming alcohol, using legal drugs, using illegal drugs]?", "Prior to your D.A.R.E. experience, did you [consume alcohol, use legal drugs, use illegal drugs]?" The following questions were then asked about behaviors after D.A.R.E. relating to alcohol ($M$ = 1.23, $SD$ = 0.37), legal drugs ($M$ = 1.51, $SD$ = 0.44), and illegal drugs ($M$ = 1.75, $SD$ = 0.41): "Have you considered [alcohol, legal drug, illegal drug] use since your D.A.R.E. experience?", "Did you [consume alcohol, use legal drugs] underage after your D.A.R.E. experience/ Have you used illegal drugs since your D.A.R.E. experience?" Additionally, respondents who answered "no" ($n$ = 57) to using any of the types of substances after D.A.R.E. were asked to rank the extent D.A.R.E. influenced their decision to not use substances on a five-point scale from no impact (1) to complete impact (5) ($M$ = 2.3, $SD$ = 1.12).

**Behaviors without D.A.R.E.** Those who did not experience the D.A.R.E. program were asked more simple questions "yes" (1) or "no" (2) questions about if they have ever considered alcohol, legal drug, and illegal drug use as well as if they consumed alcohol and used legal drugs underage and if they have ever used illegal drugs. As with the "behaviors with D.A.R.E." variable, consideration and use were combined for alcohol ($M$ = 1.12, $SD$ = 0.3), legal drugs ($M$ = 1.42, $SD$ = 0.41), and illegal drugs ($M$ = 1.73, $SD$ = 0.4).

***Behavioral Intention and Current Behaviors***

All participants were asked questions relating to how often they have used substances in the past two weeks *(M* = 2.20, *SD* = 1.37), how often they planned to use substances in the next two weeks (*M* = 2.03, *SD* = 1.24), and how often they want to use substances in the next two weeks *(M* = 2.02, *SD* = 1.12*).* The answer choices for participants were, "not at all" (1), "1-2 times," "3-5 times," "5-10 times," "10-14 times," and "14+ times" (6) to determine current use and differentiate between moderate and daily use or intentions. I did not separate substances into the smaller groups in this section to simplify data analysis.

***TPB***

The measures for this section were taken from existing research on alcohol and cannabis use by Armitage et al. (1999).

**Perceived Social Norms.** This variable was measured with questions on several five-point Likert scales. The first set of questions, "People who are important to me want me to [consume alcohol, use legal drugs, use illegal drugs]" used a scale that ranged from "definitely not" (1) to "definitely" (5). The second set of questions, "People who are important to me would ___ of my [consuming alcohol, using legal drugs, using illegal drugs]" used a scale from "strongly disapprove" (1) to "strongly approve" (5) to fill in the blank. The overall mean for social norms for all substances was *M* = 2.15*, SD* = 0.67.

**Attitudes.** Attitudes were measured on four 5-point semantic differential scales: bad/good, unfavorable/favorable, negative/positive, unsatisfactory/satisfactory (1 was the negative term, while 5 was the positive term). Respondents were asked to finish the statements: "My consuming alcohol is," "My using legal drugs is," and "My using illegal drugs is" for each of these scales. The overall mean for attitudes towards all substances was *M* = 2.9*, SD* = 1.07.

**Perceived Behavioral Control.** Though Armitage et al.'s (1999) research indicates a difference between perceived behavioral control and self-efficacy, I did not differentiate between them in this study. Questions for both variables from their research were used in the current survey, but for data analysis purposes, they are combined into one variable. 21 questions on various 5-point Likert scales were used to address these questions. Some examples are: "I believe I have the ability to consume alcohol" on a scale from "definitely do not" (1) to "definitely do" (5), "To what extent do you see yourself being capable of consuming alcohol?" on a scale from "very incapable" (1) to "very capable" (5), "How much personal control do you feel you have over consuming alcohol?" on a scale from "very little control" (1) to "complete control" (5), and "How much do you feel that consuming alcohol is beyond your control?" on a scale from "very much so" (1) to "not at all" (5). It is important to note that each of these questions were repeated to ask about using legal drugs and illegal drugs, like many of the other questions outlined in previous sections. The overall mean for perceived behavioral control for all substances was $M = 3.78$, $SD = 0.61$.

***D.A.R.E. Perceptions***

Those who said they experienced D.A.R.E. were asked several open-ended questions about their thoughts on the program. Example questions include: "Describe what you can recall of your D.A.R.E. experience," "Do you remember any emotional or personal reactions you had during the program? If so, what were they?", and "Would you say that D.A.R.E. affected your substance-use behaviors? Why or why not?" Those who did not experience D.A.R.E. but said they had heard of it were asked what they have heard of it, which left room for respondents to give their thoughts on what they know about the program. These questions were primarily used to address RQ4.

### *Sensation-Seeking*

The directions and questions that all respondents were shown to test their sensation-seeking were adopted directly from the University of Wisconsin-Madison's (n.d.) guide on sensation-seeking scales. Respondents were given five items and were instructed to respond to each with the one of the two choices that best described their feelings. For example, respondents had to choose between "A) I like 'wild' uninhibited parties" and "B) I prefer quiet parties with good conversation" for one of the questions. Other questions related to willingness to try marijuana, enjoyment of dangerous activities, comfort level with stimulants, and thoughts on using alcohol for comfort. Answer choice A was the higher sensation-seeking option for all questions and was given the value of 1, while answer choice B was the lower sensation-seeking option and given the value of 2. The sum of each respondent's answers was found meaning that the minimum sum would be 5 and the maximum sum would be 10, and then the mean of all sums was found ($M = 7.13$, $SD = 1.51$).

## Analysis

A linear regression model was used to answer RQs 1-3, along with various correlation tests. Block 1 included D.A.R.E. experience, block 2 included the TPB variables (social norms, attitudes, and perceived behavioral control), and block 3 included sensation-seeking. For each block, the dependent variables were behavioral intention and current behaviors ("I want to use substances in the next two weeks," "I plan to use substances in the next two weeks," and "I have used substances in the past two weeks"). Two-tailed tests and a $p < .05$ threshold was used to determine statistical significance, unless otherwise indicated. RQ4 was answered by using a closed coding process on the D.A.R.E. perception variable for people who experienced the

program and people who have heard of it. The closed coding process involved looking for mentions of fear and indications of positive, negative, or neutral/uncertain attitudes.

## Results

### RQ1

RQ1 asked, "How does experience with D.A.R.E. affect behaviors relating to substance use?" Of those who said they experienced D.A.R.E., 71.4% reported consuming alcohol underage while 28.6% said they did not consume alcohol underage; 39.4% reported using legal drugs underage, while 60.6% said they did not use legal drugs underage; and 21.1% of respondents reported ever using illegal drugs, while 78.9% said they have never used illegal drugs. Of those who did not experience D.A.R.E., 87% reported consuming alcohol underage, while 13% said they did not consume alcohol underage; 43.5% reported using legal drugs underage, while 56.5% said they did not use legal drugs underage; and 19.6% reported ever using legal drugs, while 80.4% said they have never used illegal drugs. Therefore, there are not large differences between substance use between those who experienced D.A.R.E. and those who did not. Those who said that they never used any of these substances underage after D.A.R.E. were then asked to rank to what extent that decision was influenced by D.A.R.E. On the five-point scale that was used with 1 as no impact and 5 as complete impact, the mean was $M = 2.3$, $SD = 1.12$. This indicates people who experienced D.A.R.E. and did not do use at least one of the substance types feel that D.A.R.E. has only minor to moderate impact on their substance use behaviors on average.

The first block of the linear regression model tested if experience with D.A.R.E. predicted behavioral intentions and current use. D.A.R.E. was not a significant predictor of wanting to use substances in the next two weeks, $\beta = .02$, $t(79) = .14$, $p > .05$, or planning to use

substances in the next two weeks, $\beta = .05$, $t(79) = .40$, $p > .05$. It also was not a significant predictor of current use within the last two weeks, $\beta = .13$, $t(79) = 1.12$, $p > .05$. Experience with D.A.R.E. did not explain any of the variance in the model for wanting to use substances (0%), and for planning to use substances and recent substance use, it only explains 0.2% and 1.6% of variance, respectively. Therefore, D.A.R.E. did not seem to have much of an impact on respondent's substance use behaviors.

Those who experienced D.A.R.E. were also directly asked the qualitative questions, "Would you say that D.A.R.E. affected your substance-use behaviors? Why or why not?" Several respondents said that D.A.R.E. did affect their behaviors with the primary justifications being that they still don't use substances or didn't start using substances until what they perceived to be later than most. Some also said that the program showed them the harms of use, which deterred them. However, many more respondents said that the program either did not affect them or only had a short-term effect on their behaviors. Some reasons for this were that respondents felt they were too young or forgot about what the program taught them by the time they were faced with the decision to use substances. Additionally, some who said that the program did not affect their behaviors said that greater influences not to use substances came from open conversations with family and school guidance counselors, hearing about negative experiences from users, religion, and even a video game, so they likely would not have used substances even without the program. Furthermore, some respondents explained that while D.A.R.E. educated them, the effects did not extend past knowledge because "there were not strategies taught in [D.A.R.E.]."

**RQ2**

RQ2 asked, "How do attitudes, norms, and perceived behavioral control predict substance use behaviors?" There was a significant bi-variate correlation between each of the behavioral intention/current use variables and the social norms and perceived behavioral control, but not attitudes. Social norms had a positive, highly significant relationship with wanting to use substances, $r(109) = .33$, $p < .001$, and with planning to use substances $r(109) = .32$, $p < .001$. There was a slightly weaker and slightly less significant, but still significant, correlation between social norms and use in the past two weeks, $r(109) = .26$, $p < .05$. Perceived behavioral control had a fairly strong, positive, highly significant correlation with wanting to use substances, $r(88) = .47$, $p < .001$; planning to use substances, $r(88) = .46$, $p < .001$; and use in the past two weeks $r(88) = .52$, $p < .001$. Attitudes, however, did not have any significant correlations with wanting to use substances, $r(89) = .06$, $p > .05$; planning to use substances, $r(89) = .08$, $p > .05$; and recent use, $r(89) = .10$, $p < .37$. These correlations indicate that there were relationships between increased perceptions of positive social norms (substance use is socially acceptable) and increased behavioral intentions/current use and between increased perceived behavioral control (ability to use substances) and increased behavioral intentions/current use, but there was no relationship between positive or negative attitudes and behavioral intentions/current use.

To further answer this research question, the TPB variables were added as the second block of the linear regression model. The inclusion of these variables added an additional 23.8% of variance in the model for wanting to use substances, 23.6% of variance for planning to use substances, and 24.1% of variance for use within the past two weeks. Social norms were a significant predictor of wanting to use substances, $\beta = .27$, $t(79) = .40$, $p < .05$, as well as planning to use substances, $\beta = .27$, $t(79) = 2.34$, $p < .05$, but not recent use, $\beta = .16$, $t(79) = 1.44$, $p > .05$. Perceived behavioral control was also a significant predictor of wanting to use

substances, $\beta = .32$, $t(79) = 2.79$, $p < .05$; planning to use substances, $\beta = .31$, $t(79) = 2.34$, $p < .05$; and recent substance use, $\beta = .41$, $t(79) = 3.65$, $p < .001$. As with correlation, there were no significant relationships between attitudes and behaviors. Attitudes were not a significant predictor of wanting to use substances, $\beta = -.03$, $t(79) = -.30$, $p > .05$; planning to use substances, $\beta = .00$, $t(79) = .02$, $p > .05$; or recent use, $\beta = -.00$, $t(79) = -.03$, $p > .05$.

**RQ3**

RQ3 asked, "What is the influence of sensation-seeking tendencies on an individual's post-D.A.R.E. behaviors?" As explained in the Methods section, a sum for sensation-seeking was found, which was then used to determine bi-variate correlation. There was a highly significant, moderately strong positive correlation between sensation-seeking and wanting to use substances, $r(79) = .61$, $p < .001$; planning to use substances, $r(79) = .58$, $p < .001$; and recent substance use, $r(79) = .32$, $p < .001$. These correlations indicate that low sensation-seeking is related to decreased substance use behaviors and high sensation-seeking is related to increase substance use behaviors.

After finding these significant correlations, the sensation-seeking sum was added as the third block in the linear regression models. Sensation-seeking was a highly significant predictor of wanting to use substances, $\beta = .50$, $t(79) = 4.28$, $p < .001$; planning to use substances, $\beta = .45$, $t(79) = 3.81$, $p < .001$; and use within the past two weeks, $\beta = .51$, $t(79) = 4.47$, $p < .001$. Importantly, after sensation-seeking was introduced into the models, each of the TPB variables became insignificant predictors of the three dependent variables. Sensation-seeking added 15.3% of variance in the model for wanting to use substances, 12.7% of variance for planning to use substances, and 16% of variance for use within the past two weeks compared to when the models only included D.A.R.E. experience TPB.

**RQ4**

RQ4 asks, “What are people’s attitudes towards the program, whether they experienced the program or have simply heard of it? Do people who have experienced the program express and recall the use of fear (i.e. feeling scared)?” This question was answered with a closed coding process to look for general attitudes towards the program and determine if respondents expressed anything relating to fear appeals. Those experienced the program were asked several questions about what they can recall from D.A.R.E. and how they feel the program affected them. There was a mixture of positive and negative attitudes towards the program, as well as a lot of people who either don’t remember their experiences well or just don’t have strong opinions on the program. Any quotations included throughout this section were not edited for grammar, capitalization, spelling, or any other errors.

When asked what they can recall about the program, many respondents explained that they don’t remember much beyond just that they learned that drugs and alcohol are “bad”, talking with police offices, getting a “cool bag” or sticker at the end, and learning “catchy acronyms” (that one respondent says they don’t remember). There were also many neutral responses about the program in which respondents explained curriculum they remembered, such as looking at pictures of teeth and lungs from people who used drugs, comparing a pig’s heart and lungs to a smoker’s heart and lungs, examining other health effects, and discussing how to “just say no”/avoid peer pressure. On the other hand, two respondents provided positive attitudes in their responses, saying “it was something that everyone was excited to do, it was more of a status thing rather than an education thing for my area” and that it was “a great way to introduce what you may experience growing up in your teen years.” However, there were many negative responses as well. These included some saying that it was an annoying program that took time

away or that the program should have explained that alcohol in moderation over 21 is fine. One respondent went more in depth about their thoughts on the program, saying:

> I remember talking about how drugs make you do crazy things and are terrible for you. It seemed like I would never have to meet people who have done drugs or do drugs. I remember the school police officer yelling at a group of students for what it seemed like no reason, and then he took them out in the hallway and yelled at them until they cried and he told them to not come back to class if they did not want to be here. We were in sixth grade.

Another respondent explained that D.A.R.E. did the opposite of what it was supposed to, saying "Uninteresting. educated me on what drugs I could use. Opened my eyes to the world of psychedelics."

When asked "How do you feel D.A.R.E. affected your knowledge and attitudes relating to drugs and alcohol?" and "Do you think D.A.R.E. effectively educated you on the harms of these substances and provided you strategies on how to avoid them?", similar attitudes emerged about there being more impactful influences and being too young for the program to remember it by the time substance use becomes a possibility. New positive attitudes towards the program found in the responses to these questions include increased awareness to substance use and potential pressures that one might experience, as well as increased preparedness on what to do in situations relating to substance use. Negative attitudes include feeling that the program "demonized" drugs and alcohol and those who use them and that it was misleading about the intensity of peer pressure. One respondent stated:

> The program educated me on the harm, but it also taught that we'd be offered drugs on every street corner. I think it exaggerated the avoidance strategies - I was never offered

> illegal drugs, and when I was offered legal drugs or alcohol, it never came with pressure to accept. No one wants to give out free drugs or alcohol. I think it focused so much on avoidance strategies that it underrepresented some of the harmful effects while overpreparing us for every possible scenario. DARE also seemed to say that all people who struggled with substance use were poor, unhygienic, and immoral. This does not at all represent the people I have come across who have used illegal drugs.

Many respondents criticize the program for never mentioning safe use in moderation or providing nuance to the idea that substance use is "bad". Interestingly, several respondents also stated that they feel the program was much more focused on the harms of drugs and how to avoid them, rather than alcohol, with a few respondents going as far as saying they don't think alcohol was addressed at all.

Fear was mentioned numerous times throughout the previous questions and the question: "Do you remember any emotional or personal reactions you had during the time of the program?" Aside from responses mentioning empathy, thinking drug use was rare, and feeling confident that they can avoid substances, fear was by far the main emotion students expressed, with one student saying they felt "terror, anxiety, fear." Some believed that fear was effective because they did not want to use substances as a result of the program, but others were critical of it being "fear mongering" used on young children. Witte's EPPM was indirectly addressed in some responses as well. The representation of threats relating to substances use was commonly recalled by students in their descriptions of the program, both positively and negatively, through statements like: "I remember feeling scared at the images and thinking that I didn't want to end up like the people," "I think it mainly showed me the physical side effects, but really nothing related to the emotional, mental, social etc side effects. I didn't really gain any knowledge, I just

had an attitude that drugs could mess you up physically," "I dont think i effectively know the harms of the substances. I think that i was more scared than educated," and "When I was going through DARE… I was scared if I consumed any alcohol in me I would die." Efficacy from D.A.R.E. was also mentioned, but more so in a negative light: "They talk a lot about just saying no and peer pressure, but don't really expand on the scenarios if someone keeps pushing," "they just said 'just say no' and 'avoid peer pressure' & acted as though the worst case scenario would happen right away." One respondent provided a positive opinion on the balance of threat and efficacy messaging, saying, "They just don't educate in terms how how it can affect you, they really just promoted abstinence of drugs and alcohol. I remember a lot of things having to do with "saying no" when people offer you something." This opinion, however, does not seem to be all respondents' opinion, indicating that while some feel fear appeals were used effectively, some felt that there was an imbalance between threat and efficacy messages that makes the use of fear in the program problematic.

Lastly, those who have heard of the program were asked what they have heard about it. Many respondents were correct in explaining that it is a program designed to prevent drug and alcohol use among adolescents, but several respondents explained their negative attitudes towards it. Some explained that based on what they have heard, the program seems to be an "outdated take" and that it perpetuates the "war on drugs." Others pointed out that they usually hear about the program in a joking manner, saying that it is a "cultural meme" and that "it turned into drug users wearing the shirts as a silly joke." One respondent explained what they have heard about it in detail, saying:

I've mostly heard it in reference to students who currently use substances (mainly

alcohol or weed) joking about being graduates of the DARE program. . . ive never heard anything positive about it or what the real content was, just that it was scare tactics.

Therefore, even those who did not experience D.A.R.E. didn't express many overtly positive opinions and even recognize that fear may play a role in the program's educational strategies.

## Discussion

### Implications

These results show that D.A.R.E. was not largely effective at reducing substance use behaviors. There were not large differences found between whether someone consumed/used alcohol, legal drugs, and illegal drugs underage. Of those who did not use or considering using substances, D.A.R.E. was only a minimal to moderate influence. Additionally, the linear regression models showed that experience with D.A.R.E. was not a significant predictor of any of the current behaviors/behavioral intention variables. However, qualitative analysis revealed that some respondents did feel that the program influenced their behaviors, though many said it was not their primary influence on substance use. This fits in with existing research on the old D.A.R.E. program, but it also suggests that the new D.A.R.E. that these respondents would have been more likely to experience is still not effective overall. These findings also suggest that there are minimal long-term effects of the program on adolescent substance use, extending years after the program into young/early adulthood, which is not something I had seen in prior research.

Attitudes were not significantly related to the substance use variables evaluated, nor were they a significant predictor. The other two elements of the TPB, social norms and perceived behavioral control, were significantly correlated and were significant predictors of most of the behavioral intentions and current behaviors variables. This indicates that higher perceived behavioral control and more positive social norms were related to respondents' decisions to use

substances. In other words, the more a respondent thought that those around them support substance use and the more they thought they had the ability to use substances, the more likely they were to have recent use or intentions for use. These results, along with research by Lin et al. (2021), could be used as justification for updating the D.A.R.E. curriculum to include messages that directly reduce perceptions of each of these things.

Sensation-seeking was also significantly correlated and was the strongest predictor of these variables. This indicates that higher sensation-seeking personalities, or those who are more likely to make risky decisions, were more likely to use substances, thus in line with existing literature. This research suggests that prevention education programs can tailor their curriculum to target students who may have higher sensation-seeking and provide information that can lessen substance related sensation-seeking tendencies. It is especially important that D.A.R.E. reaches these students specifically because they are not only more likely to use substances, as evidenced by this study, but they are also more likely to develop substance use disorders (Charles et al., 2017; Palmgreen et al., 2007).

There were primarily mixed attitudes towards the program, both by those who experienced the program and by those who had heard of it before. Although the program was not necessarily effective at preventing substance use, many respondents report other positive effects on knowledge and attitudes towards substance use and felt that the program provided them with important knowledge and skills. Wagner et al. (2004) identified other benefits of the program, some of which were mentioned in responses to the current study. These include building relationships with officers, which was something respondents recalled (some had negative things to say, though, if their officer was less friendly); increased preparedness for substance use pressures through a preventative approach rather than a reactive approach; and family

conversations about substance use because of the program. However, one of the dominant negative attitudes towards the program was that many felt that they were too young for the program to make an impact. Most respondents in this study said that they experienced the program in elementary and middle school, specifically fifth and sixth grade, and the prevalence of substance use at these ages is already so low (Hansen et al., 2023). Based on this, I would suggest that D.A.R.E. emphasize implementing their 9-12$^{th}$ grade curriculum into more school districts across the country.

Fear appeals were also widely recognized, but there were also mixed attitudes towards the effectiveness and appropriateness of these tactics. Some felt that fear was effective because they did not want to use substances as a result of the program, but others were critical of it being "fear mongering" used on young children. Many respondents felt that the program emphasized threat messages, which led to increased fear processing, but there weren't enough efficacy messages to inform students that while substance use can be very harmful, there are ways they can avoid it. Students said that they felt more scared than educated, and they did not feel that the program provided them with enough information on what they can do to avoid the harms that come with substance use. Therefore, according to the EPPM, D.A.R.E.'s use of fear appeals did not provide enough balance between threat and efficacy messages to effectively prompt danger control processes, which are ultimately what makes fear appeals effective at preventing certain behaviors (Cho & Salmon, 2006; Keller & Murphy, 1999; Moussaoui et al., 2021; Ruiter et al., 2001; Witte, 1994). These results indicate that the way D.A.R.E. incorporates fear into the program—or at least the way it is perceived by students— could be improved by incorporating additional messages that increase students' feelings of self-efficacy and response efficacy, allowing students to feel more prepared to handle substance use situations.

**Limitations**

This study had several limitations. First, given the use of snowball and convenience sampling, this is likely not a representative sample. The sample consisted of primarily white ($n$ = 66) and female ($n$ = 55) respondents. This means that there was minimal racial/ethnic diversity, as well as gender diversity, that makes this sample unrepresentative of the larger population. Additionally, due to the nature of the sampling methods, many respondents were probably students at the University of Mary Washington. Aside from social media, which may have recruited different populations, all the initial recruitment occurred through sharing the study with classes and extracurricular activities at UMW. Even if the survey was sent to anyone outside of these groups, it may still be unrepresentative of the entire population because people probably sent it to their friends, who may have similar attitudes and behaviors relating to substance use.

Another limitation of the study is the number of incomplete responses. Only 62.4% of respondents who began the survey reached the debriefing. This means that there were a lot more responses to the earlier questions, like D.A.R.E. experiences, than there were at the end. Another limitation is that research suggested more specific elements of the TPB, but for this research I had to generalize into the three primary categories for data analysis. This may have limited my ability to notice more specific influences on behaviors. Additionally, after/while taking the survey, some respondents reported confusion with the attitudes (TPB) questions on a semantic differential scale due to the questions' wording. Cronbach's alpha indicated that this measure was reliable (12 items; $\alpha = .93$), but I still find it important to note that it is possible some respondents interpreted these questions differently than others. This could contribute to the lack of correlation between attitudes and substance use. Lastly, the closed coding process that was used limited the qualitative data analysis process. While closed coding was an appropriate choice

for understanding perceptions of fear appeals, attitudes were more challenging to classify as positive or negative. Many responses provided mixed attitudes or took a neutral and/or factual stance, so a more open coding process would have allowed me to gain a better understanding of common themes among attitudes beyond just "positive" or "negative."

### Direction for Future Research

This was a rather in-depth survey, but not all data was able to be used to answer the research questions. Future research could run more statistical analyses with this data to look more closely at relationships or comparisons between variables and program effectiveness. As mentioned, the closed coding process was a limitation to this study, so future research could adopt a more open process to uncover more specific themes, as this can provide new information about common attitudes towards the program. Lastly, future research could look for additional influences on D.A.R.E.'s effectiveness regarding behaviors and attitudes to provide further suggestions for things that should be incorporated into the program's strategies or curriculum. One example of a potential influence could include looking at if the age an individual experiences has an impact on their behaviors, as many respondents expressed the attitude that they were too young for the program to effectively change their behaviors. Other influences could include understanding if a family history of substance use plays a role, examining if open conversations with school faculty or family members are more influential than the program, or looking at any other theories related to substance use behaviors.

## Conclusion

While D.A.R.E.'s effectiveness at limiting substance use behaviors was minimal, there were some positive attitudes towards the program that indicate that the program may be more impactful than the statistical tests showed. These results could be used as justification for

implementing more direct messages that address the TPB variables, sensation-seeking traits, and balance the use of fear to adhere to the EPPM. Given the importance of D.A.R.E.'s goal to prevent adolescent substance use due to the various health effects of these behaviors, it is critical that the program continues to research other potential influences and see if messages relating to these things can be implemented into the curriculum to increase effectiveness.

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Chart 1. Underage Substance Use With and Without D.A.R.E.

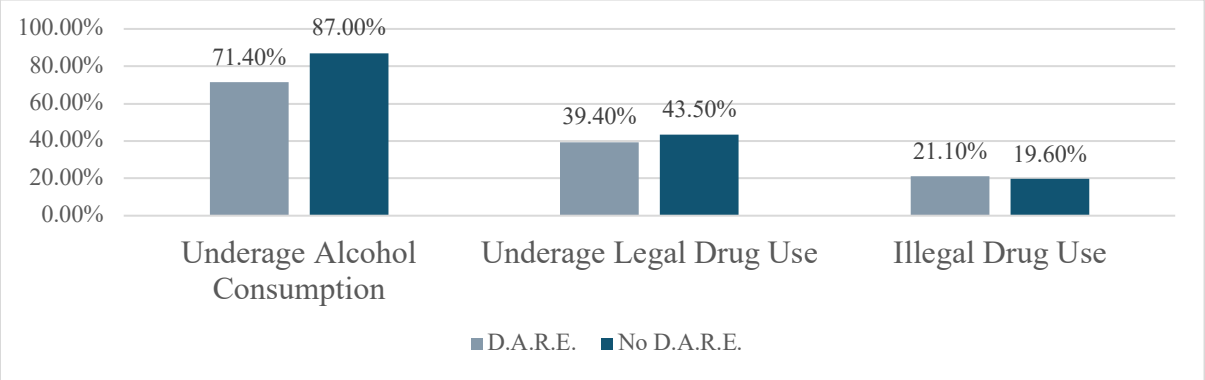

Table 1. Descriptive Statistics

| | Mean | St. Deviation | N |
|---|---|---|---|
| **Pre-D.A.R.E. Alcohol Behaviors** | 1.92 | 0.21 | 71 |
| **Pre-D.A.R.E. Legal Drug Behaviors** | 1.96 | 0.14 | 71 |
| **Pre-D.A.R.E. Illegal Drug Behaviors** | 2.00 | 0.00 | 71 |
| **Post-D.A.R.E. Alcohol Behaviors** | 1.23 | 0.37 | 71 |
| **Post-D.A.R.E. Legal Drug Behaviors** | 1.51 | 0.44 | 71 |
| **Post-D.A.R.E. Illegal Drug Behaviors** | 1.75 | 0.41 | 71 |
| **Alcohol Behaviors Without D.A.R.E.** | 1.12 | 0.03 | 46 |
| **Legal Drug Behaviors Without D.A.R.E.** | 1.42 | 0.41 | 46 |
| **Illegal Drug Behaviors Without D.A.R.E.** | 1.73 | 0.40 | 46 |
| **Wanting to Use in the Next Two Weeks** | 2.02 | 1.12 | 115 |
| **Planning to Use in the Next Two Weeks** | 2.03 | 1.24 | 115 |
| **Use Within the Past Two Weeks** | 2.20 | 1.37 | 115 |
| **Perceived Behavioral Control** | 3.78 | 0.61 | 88 |
| **Social Norms** | 2.15 | 0.67 | 109 |
| **Attitudes** | 2.9 | 1.07 | 89 |
| **Sensation-Seeking** | 7.13 | 1.51 | 79 |

Table 2. Dependent Variable of Wanting to Use Substances in the Next Two Weeks

| | Model 1 | Model 2 | Model 3 |
|---|---|---|---|
| **Block 1: D.A.R.E. Experience** | | | |
| Did you experience D.A.R.E.? | .016 | -.021 | .026 |
| Block $R^2$ (%) | 0% | | |
| **Block 2: TPB** | | | |
| Perceived Behavioral Control | | .323** | .103 |
| Social Norms | | .270* | .128 |
| Attitudes | | -.032 | -.023 |
| Block $R^2$ Change (%) | | 23.8% | |
| **Block 3: Psychological Variables** | | | |
| Sensation-Seeking | | | .495*** |
| Block $R^2$ Change (%) | | | 15.3% |
| Total $R^2$ (%) | | | 39.1% |

*Notes*: $N = 79$. Cell entries are the standardized regression coefficients, *$p < .05$, **$p < .01$, ***$p < .001$

Table 3. Dependent Variable of Planning to Use Substances in the Next Two Weeks

| | Model 1 | Model 2 | Model 3 |
|---|---|---|---|
| **Block 1: D.A.R.E. Experience** | | | |
| Did you experience D.A.R.E.? | .045 | .009 | .051 |
| Block $R^2$ (%) | 0.2% | | |
| **Block 2: TPB** | | | |
| Perceived Behavioral Control | | .313** | .113 |
| Social Norms | | .266* | .137 |
| Attitudes | | .002 | .010 |
| Block $R^2$ Change (%) | | 23.6% | |
| **Block 3: Psychological Variables** | | | |
| Sensation-Seeking | | | .451*** |
| Block $R^2$ Change (%) | | | 12.7% |
| Total $R^2$ (%) | | | 36.5% |

*Notes*: $N = 79$. Cell entries are the standardized regression coefficients, *$p < .05$, **$p < .01$, ***$p < .001$

Table 4. Dependent Variable of Substance Use in the Past Two Weeks

| | Model 1 | Model 2 | Model 3 |
|---|---|---|---|
| **Block 1: D.A.R.E. Experience** | | | |
| Did you experience D.A.R.E.? | .127 | .083 | .131 |
| Block $R^2$ (%) | 1.6% | | |
| **Block 2: TPB** | | | |
| Perceived Behavioral Control | | .405*** | .180 |
| Social Norms | | .162 | .017 |
| Attitudes | | -.003 | .006 |
| Block $R^2$ Change (%) | | 24.1% | |
| **Block 3: Psychological Variables** | | | |
| Sensation-Seeking | | | .506*** |
| Block $R^2$ Change (%) | | | 16.0% |
| Total $R^2$ (%) | | | 41.6% |

*Notes*: $N = 79$. Cell entries are the standardized regression coefficients, *$p < .05$, **$p < .01$, ***$p < .001$

Table 5. Bi-Variate Correlations

| | **Wanting to Use in Next Two Weeks** | **Planning to Use in Next Two Weeks** | **Use Within the Past Two Weeks** |
|---|---|---|---|
| **Perceived Behavioral Control** | $r(88) = .473$, $p < .001$ | $r(88) = .463$, $p < .001$ | $r(88) = .524$, $p < .001$ |
| **Social Norms** | $r(109) = .325$, $p < .001$ | $r(109) = .322$, $p < .001$ | $r(109) = .256$, $p < .05$ |
| **Attitudes** | $r(89) = .055$, $p > .05$ | $r(89) = .078$, $p > .05$ | $r(89) = .095$, $p < .05$ |
| **Sensation-Seeking** | $r(79) = .606$, $p < .001$ | $r(79) = .575$, $p < .001$ | $r(79) = .322$, $p < .001$ |