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Investigating the Efficacy & Implications of Abstinence-Based Drug Education

Sophia Hanken
Portland State University

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Investigating the Efficacy & Implications of Abstinence-Based Drug Education

By:

Sophia Hanken

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requirements for the degree of

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Thesis Advisor:

Dr. Claire Wheeler, MD, PhD

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Introduction:

Substance misuse is a complex public health issue influenced by a plethora of factors. Drugs and drug misuse have been touted as one of the most significant problems facing the United States. This ideology was solidified by President Nixon's declaration of the "War on Drugs" in 1971 (Woolley & Peters, 2016). Addressing substance misuse became a government priority resulting in the implementation of drug education in American schools and media. Drug education in America focuses on a variety of substances including ones that are legal for adults to consume, illegal and even prescription medication.

Public health aims to improve the quality of life through health promotion. One of the fundamental principles of public health involves the three levels of prevention. Primary, secondary, and tertiary prevention are targeted interventions for preventing disease. The focus of primary prevention is to prevent disease or injury before it occurs. Types of primary interventions include vaccinations, protective policies, and education (Kisling & Das, 2021). Secondary prevention involves the early detection and treatment of diseases to prevent their progression. While tertiary prevention focuses on treating diseases to prevent further disease related health complications. This review focuses on drug education as a form of primary prevention. Education is one of the most valuable strategies for primary prevention and will be further discussed in relation to substance use throughout this paper. While education is not a fool-proof method for solving all potential health issues, it is widely regarded as an efficient and cost-effective approach to reducing mortality and morbidity (Hahn & Truman, 2015).

In theory, drug education as a form of primary prevention should be an effective method for reducing drug-associated injuries, illnesses and death. Yet, as of 2020, it is estimated that

approximately 40.3 million Americans qualified as having a substance use disorder within the past year (Substance Abuse and Mental Health Services Administration, 2021). Additionally, annual drug-related deaths are at an all-time high (Center for Disease Control, 2021). With how widespread drug use education is, these programs seem to fall short of their goals. Traditionally, drug education programs in the U.S are focused on substance abstinence. Abstinence-based substance use education centers around preventing abuse through discouraging engagement in any form of substance use (Midford, 2010). This approach often follows morality-based rhetoric that blurs the lines between substance use and abuse. While not ill-intended, abstinence-based programs are not effective in preventing substance-related harm. Due to the United States' long and complex relationship with drugs, public health interventions like education can be undermined by political agendas and misinformation.

Drugs carry a strong stigma within the United States due to their perceived proximity to addiction and criminal behavior. Drug policies and rhetoric can contribute to this stigma and are further perpetuated through education. The purpose of this thesis is to critique two of the most widely used abstinence-based drug education programs; Drug Abuse Resistance Education (D.A.R.E) and Project ALERT. Both programs aim to prevent substance abuse by promoting the resistance of any substance use. The overwhelming majority of evidence shows that these programs do not provide the education or skills needed to make safe and informed decisions. Abstinence-based drug education is not a pragmatic solution for reducing substance-related harm or promoting health, as this review of outcomes research will show. This narrative review of existing literature will assess the effectiveness of abstinence-based drug education and the broader social implications of this form of education. The objective of this review is to examine the origins of abstinence-based drug education and its relation to the drug war, the curriculum, and

rhetoric of these programs, program effectiveness, how these programs can contribute to perpetuating stigma and stereotypes, and lastly alternative strategies for drug education.

Background:

Policy, Rhetoric & the Emergence of Drug Education

Substance use education programs cannot be discussed without contextualization.

Anthropological research indicates that humans have used substances for a variety of uses for hundreds of years (Adovasio & Fry, 1976). Substance use is a spectrum ranging from no use to problematic use of licit or illicit substances. From this perspective, drinking just a single glass of wine can be considered substance use. While it doesn't seem like it should be necessary to clarify the difference between substance use and misuse, terms are often used interchangeably, blurring their distinctions. The spectrum of substance use is too complex to forego safety measures in favor of shallow slogans like "Just Say No" or "Don't do drugs". To prevent problematic substance use, safety must be prioritized in drug education.

Policy and rhetoric are intertwined with one another and have played an important role in the development of both drug education and attitudes towards substance users. While addressing all factors leading to the development of drug education is beyond the scope of this review, it is important to acknowledge how significantly discrimination and moralism have impacted drug policy development and consequently education. Rhetoric is used to persuade, not to inform. Moralistic rhetoric that characterizes substance use as a threat can contribute to moral panic which is "characterized by suddenly increased concern and hostility in a significant segment of a society, in reaction to widespread beliefs about a newly perceived threat from moral deviants" (Victor,

1998, p. 543). Victor goes on to opine that moral panic does not only lead to hostility or newfound fear but the development of social movements and even political struggles aimed at the elimination of deviant behavior. Discrimination and racism are often embedded into the rhetoric of moral panic. While substance misuse can cause harm, it is often a scapegoat for larger social issues like unemployment, economic depression, crime, and racism (Szasz, 1982). Moralism and discrimination are recurring themes throughout the development of drug policy and education in the United States. These concepts will further be examined in the following sections.

1900s-1960:

One of the first restrictive drug policies of the 1900s was the Smoking Opium Exclusion Act of 1909 (Redford & Powell, 2016). This act was the result of a culmination of discriminatory laws and rhetoric. Opium use was brought to and popularized in the U.S by Chinese immigrants. While Chinese immigrants were not met with open arms in the U.S., their labor was viewed as inexpensive and exploitable (Mark, 1975). As time went on and the Chinese population increased, there was less demand for labor. High rates of unemployment furthered class disparities leading to increased animosity towards the Chinese communities. Ultimately leading to the development of the Chinese Exclusion Act (Mark, 1975). The purpose of this legislation was developed to prevent Chinese laborers from immigrating to the United States. This resulted in a decrease in the Chinese population and increase anti-Chinese ideology (Mark, 1975). Opium's association with Chinese immigrants became synonymous with "persons of the underworlds of prostitution, crime, and filthiness" (Morgan, 1981, p. 35). The Opium Exclusion Act banned the use and possession of Opium outside of a medical context and specifically targeted Chinese immigrants (Redford &

Powell, 2016). Anti-Chinese ideology and rhetoric contributed to the development of this policy and demonstrate a recurring theme in American politics; scapegoating (Mark, 1975).

The Harrison Narcotics Tax Act of 1914 followed closely behind the Opium Exclusion Act. The purpose of the Harrison Act was to regulate the importation, and production distribution of narcotics, specifically opium and cocaine (Redford & Powell, 2016). This act made the use of these substances outside of a medical context illegal. The rhetoric leading up to the Harrison Narcotic Tax Act reflected that of the Opium Exclusion Act. Social movements pushed the idea that substance use was a moral threat. Substance use was often associated with “depraved” individuals and “inferior races” which reflects the ideas of discrimination and moralism (McNamara, 2011). These social movements had ties to religious groups and pushed dogmatic and biased ideologies influencing both public and political opinions (McNamara, 2011). This stigmatizing rhetoric only furthers racial stereotypes about substance use and crime through unfounded claims justifying discriminatory and punitive policies.

One of the most notorious and controversial substance-related laws was the Prohibition of Alcoholic Beverages which lasted from 1920 to 1933. The Temperance Movement was an influential group for the lobbying and development of the Eighteenth Amendment and Alcohol Prohibition in the United States (Sussman et al., 2013). The Temperance Movement centered around abstaining from alcohol consumption and identified alcohol use as hazardous to health and communities. This movement saw a causal relationship between alcohol and societal issues, offering abstinence as a morality-based solution (Levine & Reinerman, 1991). The Temperance Movement is a reflection of Victor's (1998) characterization of moral panic. Alcohol use was viewed as a threat to society which lead to the development of a social movement aimed at

eliminating the threat of alcohol through prohibition. The goals of Prohibition were well-meaning, yet had negative consequences. Prohibition did not stop alcohol consumption or solve America's societal problems as intended. Prohibition led to unregulated alcohol production, a rise in organized crime, and negative economic impacts (Levine & Reinerman, 1991). Despite being repealed in 1933, Prohibition and the Temperance movement continue to have lasting effects on U.S drug policy . The Temperance Movement led to the development of the first abstinence-based drug education programs in American schools (Beck, 1998). Temperance education followed a religious, morality-based approach to drug use, so education followed suit. This messaging has remained almost unchanged, setting the standard for modern drug education programs (Beck, 1998).

1969- Development of Reagan Era Drug Education Programs:

Rhetoric is a powerful tool in efforts to influence politics and public health policy. While the rhetoric of public health initiatives are not always benevolent, they are typically grounded in evidence-based science. Whereas, in politics rhetoric may emphasize persuasion. Political rhetoric concerning substance use has been seen throughout multiple presidencies.

Anti-drug rhetoric and policies came to the forefront of U.S politics with President Nixon's declaration of a "War on Drugs" (Woolley & Peters, 2016). This declaration stemmed from concerns regarding increasing rates of drug misuse, especially among individuals returning from war (Woolley & Peters, 2016). It's important to acknowledge that rhetoric is used to persuade, not to inform. Using the term "War" implies that there is an enemy or threat to the well-being of the United States. The enemy or threat in this context is not only drugs but the users themselves, leading to further stigmatization and justification of moral panic. During Nixon's

message to Congress in 1971 on drug abuse, Nixon stated that “We need an expanded effort to show that addiction is all too often a one-way street beginning with ‘innocent’ experimentation and ending in death.” (Woolley & Peters, 2016, para. 29). This fallacy demonstrates the misrepresentation, and oversimplification of substance misuse. Nixon era policies expanded federal funding leading to the Controlled Substances Act and the development of the Drug Enforcement Administration (DEA) (Gabay, 2013).

While the Nixon administration initiated the “War on Drugs”, the Reagan administration solidified drug use as a criminal justice issue rather than a public health concern. Addressing the Nation, Reagan stated that “nothing would be more effective than for Americans simply to quit using illegal drugs.” (Reagan & Reagan, 1986, para. 19), framing substance use as an effortless choice. When substance use is “expressed through rhetoric as the result of a conscious choice, policy will typically be more punitive than when use is defined as a disease”. (Hawdon, 2001, p. 425). This rhetoric justifies punitive policies following the declaration of the “War on Drugs”. The perception of the cause of substance use centered around a lack of responsibility and morality. This is the same rhetoric consistently used throughout the development of drug policies. The Anti-Drug Abuse Act passed in 1986 centered around increasing punitive punishments for substance users and distributors (Weld, 1987).

Reagan era policies significantly impacted black communities. Implicit biases regarding race and substance use fueled by decades of stigmatizing rhetoric have contributed to mass incarceration. There is no statistically significant difference between substance use or distribution between Black and white Americans (Center for Behavioral Health Statistics and Quality, 2015), yet Black Americans make up a disproportionate number of substance-related arrests (Carson,

2016). Drug-related mass incarceration of Black Americans is still prevalent today, decades after the development of Reagan era policies.

Concurrently, Nancy Reagan's "Just Say No" campaign created greater public concern regarding substances and substance use among adolescents (Mackey-Kallis & Hahn, 1991). This campaign likely justified the continuation of the "War on Drugs" through stigmatizing rhetoric. Like earlier social movements, "Just Say No" framed substance use as an issue of individual and moral responsibility. Nancy Reagan personally described substance use as a moral issue, declaring the public as responsible for being intolerant of drug use (Reagan & Reagan, 1986, para. 11). The idea of individual responsibility was furthered by questioning the public's values, equating them to morality. Again telling the public that they "have the responsibility to put [their] consciousness and principles on the line" (Reagan & Reagan, 1986, para. 11). The platform that comes with being the First Lady of the United States in addition to heading the "Just Say No" campaign legitimized Nancy Reagan's claims. The rhetoric of this campaign attempted to give a seemingly simple and universal solution to adolescent substance use in America. Using a simple "yes-no dichotomy" gives the impression that there is a right answer, and a wrong answer, a good or a bad answer, ultimately resulting in rigid ideology (Mackey-Kallis & Hahn, 1991). The ultimate message of "Just Say No" was literal and unyielding, drugs are bad, do not do them.

The "Just Say No" campaign heavily influenced the development and curriculum of modern drug abuse prevention programs. The Drug-Free Schools and Communities Act of 1989 led to the implementation of both zero-tolerance drug policies and mandated drug education in public schools (Custer & Kent, 2018). Zero-tolerance policies and drug education reflected the laws and regulations surrounding substances and substance use. From this era emerged some of

the most well-known and widely utilized drug abuse prevention programs: Drug Abuse Resistance Education (D.A.R.E) & Project ALERT (D.A.R.E, n.d.-f; *Project ALERT*, n.d.-b). Similar to the ideology of the Temperance Movement, these programs emphasized abstinence. The intentions behind these programs are sensible; people want to protect their children and communities from the potential dangers of substance misuse. Yet, they are often ill-informed and biased. These programs utilize a variety of strategies to persuade adolescents to abstain from substance use without providing the tools necessary for making informed decisions (Nicholson et al., 2013). D.A.R.E and Project ALERT curriculum and effectiveness will be further discussed throughout this thesis.

Overview of Dare:

The Drug Abuse Resistance Education Program (D.A.R.E) was founded in the early 1980s through the partnership of the Los Angeles Police Department and the Los Angeles Unified School district (D.A.R.E, n.d-c). D.A.R.E is still one of the most widely used drug abuse prevention programs in the United States (Kumar et al., 2013). Aligning with the messaging of “Just Say No”, D.A.R.E focused on substance abstinence. A key feature that distinguishes D.A.R.E from other programs is the use of Police Officers as program educators. There is a clear association between substances and criminality due to the delivery of the D.A.R.E curricula. D.A.R.E was developed as a substance abuse prevention program whose mission is to teach students skills that will allow them to be safe and healthy (D.A.R.E, n.d.-c). This mission statement is in line with the public health ideology of health promotion. The original curriculum goals of D.A.R.E included knowledge regarding substances, attitudes towards police, social skills, self-esteem, and overall drug use (Ennett et al., 1994).

D.A.R.E Curriculum & Effectiveness:

D.A.R.E has faced a substantial amount of scrutiny since its inception. While the program touts itself as being “science and evidence-based” and “effective“ (*D.A.R.E*, n.d.-a), many independent studies refute this claim. A meta-analysis looking into the original D.A.R.E program indicated that the program’s effect on reducing or preventing drug use and achieving program goals was minimal. (Ennett et al., 1994). A follow-up study also found mixed results, showing that while there may be some short term effects, “DARE [had] no long-term effect[s] on a variety of drug use measures” in addition to a slight increase in substance use among suburban students (Rosenbaum & Hanson, 1998). Research that may support the effectiveness of DARE still refutes long-term retention of the curriculum. While D.A.R.E has acknowledged these studies, the program refuted these statistics by questioning the legitimacy of this research, criticizing other programs, and claiming that the original curriculums have been updated and are now evidence-based (*D.A.R.E.*, n.d.-c). Research must substantiate the continued use of the “evidence-based” label.

While initially developed for elementary school students, D.A.R.E. has expanded program curricula for middle and high schoolers. The current core curriculum for elementary and middle school students is called “Keepin’ it REAL”, whereas the high school curriculum is known as “myPlaybook” (*D.A.R.E*, n.d.-a). D.A.R.E claims that these programs are evidence-based and provides sources to back up these claims. These programs are not free, therefore direct discussion of the curriculum is limited to information provided by these sources.

myPlaybook:

Before delving into *myPlaybook*, there are some inconsistencies regarding the targeted population of this program. The D.A.R.E curriculum website describes *myPlaybook* as being targeted toward high school students, whereas the research D.A.R.E uses to support the effectiveness of *myPlaybook* involves university students (Milroy et al., 2014). D.A.R.E cites three sources supporting the effectiveness of *myPlaybook*. All of these studies involved at least two of the same researchers from the University of North Carolina Greensboro, specifically David Wyrick Ph.D and Jeffery Milroy Dr.PH (Milroy et al., 2014; Fearnow-Kenney et al., 2016; Lewis et al., 2016). The University of North Carolina Greensboro is also a strategic partner for D.A.R.E (D.A.R.E, n.d.-e). All of these studies focused exclusively on college student-athletes and alcohol use which differs from D.A.R.E's targeted audience. Conclusive statements should not be applied to populations that have not been studied. Additionally, to be aware of potential bias, it's important to note that the researchers conducting these studies also developed the curriculum for *myPlaybook* (Fearnow-Kenney et al., 2016).

One of the studies D.A.R.E uses to back up the validity of *myPlaybook* is unrelated to the actual outcomes of the program. This study looked into rates of alcohol use among NCAA athletes and why athletes used alcohol (Milroy et al., 2014, p. 69). The authors claim that this study was “designed to optimize *myPlaybook*” (Milroy et al., 2014, p. 69). The study consisted of a “web-based pretest survey, *myPlaybook*, an immediate web-based posttest survey, and a web-based 30-day follow-up survey.” (Milroy et al., 2014, p.70). The pretest survey questions centered around whether or not individuals drink alcohol and why. The post-test survey items or results are not mentioned. The result and discussion section of this study only presents data on

demographics and reasons for the use or non-use of alcohol. While the development of educational programs is briefly mentioned in the “implications” section of the study, this study in no way supports the effectiveness of *myPlaybook* as an effective drug abuse prevention program.

The same researchers conducted a follow-up study more focused on *myPlaybook*. This study also targeted drinking among college athletes but focused on social norms (Fearnow-Kenney et al., 2016). This study followed a similar model to the previous study discussed, consisting of a pretest, *myPlaybook* curriculum, and a posttest (Fearnow-Kenney et al., 2016). *myPlaybook* functioned as an intervention, “specifically for college student-athletes that focuses on the prevention of alcohol and other drug use in this population” (Fearnow-Kenney et al., 2016, p. 4). Outcome goals for the program included a “decrease in perceived social norms for the prevalence of alcohol use among their peers, an increase in negative expectancies about alcohol use, and an increase in intentions to use harm prevention strategies” (Fearnow-Kenney et al., 2016, p. 5). In both the program design, and hypothesized outcomes, researchers specifically discuss preventing “use” of substances and the promotion of negative expectations of “use”, not misuse. Survey questions regarding perceived social norms do not involve general alcohol use as implied, but the prevalence of binge drinking (Fearnow-Kenney et al., 2016). In this context, alcohol use and binge drinking are synonymous. Not only this, but the researchers concluded that the group who received the *myPlaybook* education were less likely to engage in binge drinking, therefore “*myPlaybook's* effect on changing social norms is thus an important one” (Fearnow-Kenney et al., 2016, p. 10). This conclusion was based on comparing the accuracy of estimating rates of binge drinking among student-athletes. The researchers solely focused on expectations regarding prevalence rather than determining if the control or treatment groups changed their behavior. While the program goals do involve harm reduction, the group that

participated in the *myPlaybook* curriculum had no statistically significant change in intention to utilize harm reduction strategies (Fearnow-Kenney et al., 2016, p. 9). Due to the lack of conclusive data from this study, labeling *myPlaybook* as an evidence-informed program may be more appropriate than the evidence-based label.

Keepin' it REAL:

Keepin' it REAL (kiR) is the current D.A.R.E curriculum for elementary and middle schoolers. This program was developed and tested by Michael Hecht of Pennsylvania State alongside The Drug Resistance Strategies Project (DRS) (Hecht et al., 2010). The acronym “*REAL*” is the strategy program developers teach students to use, “Refuse, Explain, Avoid, and Leave” (Day et al., 2017). *Keepin' it Real* was later adopted by D.A.R.E America through a licensing agreement that allowed “the DRS team to retain control of the curriculum and benefit financially from any long term success”, indicating potential financial incentive for the program’s success (Hecht et al., 2010, p. 1).

Keepin' it REAL follows the Socio-Emotional Learning Theory (SEL) approach to education (Day et al., 2017). The CASEL organization is a resource that provides information on the theoretical framework and methodology for implementing SEL education into schools. SEL centers around the development of social and emotional intelligence, responsible decision making, and promoting positive relationships through the use of collaborative activities, encouraging students to share their perspectives, and building trusting relationships (CASEL, 2021a). Interestingly, the CASEL organization states that SEL education that prioritizes a political agenda can negatively impact students (CASEL, 2021b). D.A.R.E and the program developers of *kiR* describe the program as a “universal school-based substance use prevention intervention

(Gosin et al., 2003). The goal of the *kiR* curriculum is to not only prevent substance use but promote anti-drug ideology (Kulis et al., 2017).

The D.A.R.E website provides six studies regarding the program's effectiveness. Four of these studies involved the program developer Michael Hecht (Day et al., 2017; Hecht et al., 2003; Hecht et al., 2006; Pettigrew et al., 2015). Stephen Kulis is another name frequently referenced in this study list. Kulis was involved in studies both with and without Hecht (Kulis et al., 2007; Marsiglia et al., 2010). The final and most recent published study on the effectiveness of *Keepin' it REAL* stemmed from a contract between D.A.R.E and the University of North Carolina Greensboro, the same University which developed and tested *myPlaybook* (Fearnow-Kenney et al., 2016). Three of the most recent studies cited by D.A.R.E. will be further discussed.

A 2017 preliminary study provided by D.A.R.E. investigated the effectiveness of *Keepin' it REAL* in elementary school students. This study involved the use of pre and post-curriculum surveys to assess the outcome of selected measures. The researchers noted that the pretest survey showed an insignificant rate of substance use in the studied population (Day et al., 2017). Consequently, the researchers decided not to evaluate the rates of substance use in the posttest survey. (Day et al., 2017). This shifts the goal of the study from investigating the effect of *kiR* on actual substance use to "competencies, attitudes, and cognition" (Day et al., 2017). This shift implies that the researchers did not anticipate finding statistically significant data regarding actual rates of substance use. While this decision isn't necessarily in bad faith, this study does not substantiate any claims regarding *kiR's* ability to reduce or prevent substance use. The post-test study measures included definitional knowledge, social and emotional learning competencies, intent to smoke, and attitudes toward police (Day et al., 2017). Only one of these measures was

directly related to substance use and was not a measurement of use but an intent of use. In regards to definitional knowledge, the researchers concluded that “the D.A.R.E. treatment group increased their knowledge significantly more than did control students.” (Day et al., 2017). While this appears promising, further research into the definitional knowledge measure indicates that the measure only assessed students’ ability to correctly define the following concepts: “evaluating your own decisions, confident communication, interpersonal resistance, and empathy” (Day et al., 2017). While Some of these concepts may be indirectly related to substance use, there are no competency measures for substance safety. One of the social and emotional learning competency measures involved assessing decision-making skills. This was based on “how students would respond to a scenario where an older cousin acting as babysitter invites friends over without permission.” (Day et al., 2017). While this scenario relates to decision-making, it is not directly associated with substance use. Indirect measures cannot determine whether students will not engage in substance use, and therefore do not improve the efficacy of the *kiR* program.

One of the studies provided by D.A.R.E compared the difference between the success of *Keepin 'it REAL* to *Living in 2 Worlds (L2W)*, a culturally adapted version of *Keepin 'it REAL* directed towards Indigenous People (Kulis et al., 2017). Despite claims of universality, *kiR* was not effective in preventing substance use in Indigenous students (Kulis et al., 2017). This study concluded that “only cigarette use showed significantly more positive changes for students who participated in *L2W* as compared to *kiR*.” (Kulis et al., 2017, p. 8). This study suggests that there is not a universal approach to drug education, especially when considering sociodemographic factors. Therefore, the D.A.R.E should not proclaim the *Keepin 'it REAL* is universally applicable.

The study from the University of North Carolina Greensboro concluded that *Keepin' it REAL* “is effective and successful in the long-term reduction of drinking alcohol, getting drunk, smoking cigarettes, and vaping” (University of North Carolina Greensboro, 2022, p. 2). This conclusion was based on the 4-month follow-up survey students participated in (University of North Carolina Greensboro, 2022). Most criticism from D.A.R.E stems from the lack of long-term effectiveness, long term retention is a goal of the newer D.A.R.E programs. The studies criticizing long-term effectiveness relied on posttreatment surveys administered at least one year after program participation (Ennett et al., 1994; Rosenbaum & Hanson, 1998). Additionally, a study assessing D.A.R.E’s efficacy noted that the program’s effectiveness declined after six months (Brown et al., 2007). Yet the study on *Keepin' it REAL* from the University of North Carolina Greensboro based conclusions of long-term efficacy on a four-month follow-up.

Overview of Project ALERT:

Project Adolescent Learning Experiences Resistance Training (ALERT) is a drug education program developed in the 1980s and still widely implemented throughout the United States (*Project ALERT*, n.d.-b). This program coincided with the development of *D.A.R.E.* and the “Just Say No” campaign. *Project ALERT*’s goal is to motivate “students against drug use, cultivate[] new non-use attitudes and beliefs, and equip[] teens with the skills and strategies they’ll use to resist drugs.” (*Project ALERT*, n.d.-a, p.1). *Project ALERT* asserts that it is an evidence-based, universally applicable substance abuse prevention program. This program was developed and tested by the RAND Corporation (*Project ALERT*, n.d.-a). The RAND Corporation describes itself as a nonprofit institution whose aim is to advance policy through research and analysis (RAND, n.d.-a). All evidence utilized to demonstrate the effectiveness of *Project ALERT*

was researched by the RAND Corporation (*Project ALERT*, n.d.-a). Not only this, but to increase the reliability of the program, RAND describes itself as “the nation’s leading think tank on drug policy” (*Project ALERT*, n.d.-a, p.2). RAND provides no evidence to substantiate this claim.

Despite this potential issue, Project ALERT is a free program, making the curriculum content and research much more accessible.

Project ALERT’s Efficacy:

Despite the claims of *Project ALERT*, independent research indicates that this program may not be as effective as asserted. While the RAND Corporation is planning an additional study beginning in 2022 (*RAND*, n.d.-b), *Project ALERT* provides a comprehensive document discussing the research conducted on the efficacy of the program from 1990 to 2010 (*Project ALERT*, n.d.-b). Twelve studies are listed to support *Project ALERT’s* effectiveness in this document. The first three studies of Project ALERT that began in the early 1990s had mixed results. The first study indicated that the program was only had short term benefits, and was ineffective for adolescents already engaging in substance use (Ellickson & Bell, 1990). The two follow-up studies concluded that the effectiveness of the program was short-lived (Bell et al., 1993; Ellickson et al., 1993). While these studies didn’t necessarily lead to positive outcomes, they function as a pilot. The next set of studies was of a revised curriculum and seemed to yield more positive results for certain risk groups. In regard to cigarette use, initiation and regular use were lowered, (Ellickson et al., 2003). Additionally, “[s]tudents in Project ALERT schools showed lower rates of current and regular marijuana use compared with controls”; However, there was no statistically significant difference in alcohol or marijuana consumption between the control and treatment groups (Ellickson et al., 2003, p. 1835). A follow-up to this study (included

in Project ALERT's cited studies) was unable to replicate the results. The results of this replication analysis "failed to provide evidence that the program had beneficial effects for substance use (St. Pierre et al., 2005). There is a recurring theme of inconsistent results.

Three of the most recent studies cited by *Project ALERT* don't seem to prove the program is effective. The first of these studies consisted of a cluster-randomized trial specifically looking into *Project ALERT*'s effect on the rates of substance use. This study concluded that *Project ALERT* had no significant effect on these outcomes (Ringwalt et al., 2009). *Project ALERT* even acknowledges that "students who received Project ALERT were using substances at similar rates than participants who did not receive *Project ALERT*." (*Project ALERT*, n.d.-b, p. 7). A follow-up to this study in 2010 investigated the effectiveness of *Project ALERT* one year after completion of the curriculum. The results of this study do not support the long-term effectiveness of Project ALERT (Ringwalt et al., 2010). The final study cited involves *Project ALERT*'s emphasis on social normative beliefs. Project ALERT argues that adolescents have prodrug beliefs due to media glamorization (*Project ALERT*, n.d.-a). Therefore the program seeks to alter these beliefs. This study specifically looked into *Project ALERT*'s effect on these presumed prodrug beliefs. The results of this study indicated that there was a lack of evidence substantiating any positive effects Project ALERT had on prodrug beliefs (Kovach et al., 2010). None of these three studies appear to support the positive effects of *Project ALERT*.

Additional independent studies also refute the program's effectiveness. A study from 2007 utilized a Mixed-Model Meta-analysis of trials informed by different school-based drug prevention programs in lesser-studied rural communities (Brown et al., 2007). One of the programs investigated was *Project ALERT*. While this study indicated there may be some

short-term benefits of the program the overall impact was not promising. The effectiveness declined after six months and the program had little to no effect on students already engaging with substance use (Brown et al., 2007). An additional study from the department of epidemiology at Texas A&M utilized three large-scale evaluations of Project ALERT to determine the program's effectiveness (Gorman & Conde, 2010). The authors concluded that Project ALERT had little effect on substance use (Gorman & Conde, 2010). The authors of this study also note the lack of clear criteria for considering programs like Project ALERT as being evidence-based.

A lack of long-term effectiveness and a lack of effectiveness in populations already engaging in substance use is a common criticism of abstinence-based programs. If data regarding these criticisms can be omitted to align with program goals, the program will appear more effective. The program developers do acknowledge that “the long-term effectiveness of Project ALERT is not yet well established” (*Project ALERT*, n.d.-b, p. 7). Despite this, the developers claim that Project ALERT can successfully “delay the initiation of drug use during an at-risk time among vulnerable youth and reduce use for high-risk students who have already started using drugs.” (*Project ALERT*, n.d.-b, p. 7). Yet reflecting on the previous studies discussed, there is no recent evidence conclusively supporting the reduction of preexisting substance use. In fact, “[t]he goal of Project ALERT is to reduce the use of those dangerous substances by keeping nonusers from trying them and by preventing non-users and experimenters from becoming regular users.” (*Project ALERT*, 2021b, p. 10). The rhetoric of this statement indicates that there is no intention to reduce harm in middle schoolers already engaging in regular substance use. The program philosophy centers around middle schoolers being a vulnerable population. If preventing substance abuse is another program goal, individuals who are already using substances are more vulnerable to substance-related harm. Based on these findings it is clear that the curriculum

purpose and goals are inconsistent. This may be the result of blurring substance use and misuse, or this could be intentional.

While Project ALERT shows transparency regarding these studies, the research does not support the assertion of efficacy. At least seven of the twelve studies used to support Project ALERT's effectiveness do not necessarily substantiate these claims. Project ALERT has decades' worth of data, some of which refutes the program's success. A large focus of these studies involves investigating the delivery, timing, and sociological theories utilized in the program. The mixed results of this research indicate that there may be another factor at play impacting Project ALERT's effectiveness; the curriculum.

Project ALERT's Curriculum:

The *Project ALERT* curriculum consists of 14 lessons aimed at middle school students (*Project ALERT*, 2021b). These lessons range from discussing the consequences of using specific substances to resisting various kinds of pressures to use substances (*Project ALERT*, 2021b). Resistance is a common theme throughout the curriculum, appearing as the focus of four lessons (*Project ALERT*, 2021b). While resistance may indicate the program's intention to slow substance use, the rhetoric of the program implies resistance to mean the refusal of substances. When delving further into *Project ALERT's* overview, the rhetoric of several statements stands out. "A skill-based curriculum that teaches teens how to say NO; students should be given the tools to make a decision against using drugs; increase the likelihood to remain drug-free; *Project ALERT* motivates students against drug use" (*Project ALERT*, n.d.-a, pp. 1-2). The rhetoric of this program truly advocates against any form of substance use, rather than focusing on the prevention of abuse. Furthermore, the various descriptions of the program conflicting messages to participants;

Project ALERT is a “substance abuse prevention program” (*Project ALERT*, n.d.-a, p. 1), yet the curriculum manual states that *Project ALERT* is a “Drug Prevention Program” (*Project ALERT*, 2021b, p. 2). These are two entirely different goals, the lack of distinguishment blurs the line between use and abuse. This rhetoric conflates any substance use with abuse.

A large portion of *Project ALERT*'s curriculum consists of consequences. While much of the consequences discussed are true and relevant, some are exaggerated. These exaggerations intend to push anti-drug attitudes, but some are misinformative and harmful. Negative associations with substances and substance users are built into *Project ALERT*'s Curriculum. An example of this occurs in one of the first activities where students are asked to draw representations of concepts related to substance use. The curriculum examples include representing addiction with chains, and sobriety with a happy face (*Project ALERT*, 2021a). Additionally, negative consequences are a focal point of the curriculum. Regarding marijuana, *Project ALERT* describes a variety of consequences that can occur from getting stoned once. These include drowning, causing a fire, doing things you might regret, losing control of yourself, failing a drug test, and a loss of interest in all activities except drug use (*Project ALERT*, 2021a). A similar list is also seen in the discussion of alcohol. Some of which include: doing something you might regret, sex, vandalism, or violence (*Project ALERT*, 2021a). These consequences are framed as being able to happen any time an individual drinks. Additionally, instructors are encouraged to reinforce this ideology by validating student responses that align with program goals (*Project ALERT*, 2021b).

A particularly harmful exaggeration is discussed regarding the consequences of impaired judgment. This section of the curriculum focuses on what can happen if an individual uses

substances at a club or party. The curriculum states that “ecstasy and meth can make you feel powerful and less inhibited. But these feelings can make you vulnerable to sexual attack[s].” (*Project ALERT*, 2021a, p. 230). This statement is a textbook example of victim-blaming, implying that an assault would not happen if substances were not involved. *Project ALERT* further states that “if you become unconscious or unable to move, you cannot call out for help or get away if someone tries to attack you.” (*Project ALERT*, 2021a, p. 297). This rhetoric surrounding this particular “consequence” is damaging because it inadvertently contributes to negative stereotypes surrounding assault. Victims are more likely to be dismissed or blamed for assaults when substances are involved (Grubb & Turner, 2012). *Project ALERT* fails to mitigate the potential harms of these statements. In the entire core curriculum, sexual activity is brought up ten times (*Project ALERT*, 2021a, p. 72, 86, 90, 93, 96, 230, 297, 317, 322, 325). In all ten instances, there is no discussion of consent or acknowledgment that people can be assaulted when being sober (*Project ALERT*, 2021a). The lack of an attempt to contextualize the discussion of sexual activity being a consequence of substance use is careless.

Another topic discussed throughout the curriculum is addiction. Addiction is framed in a stigmatizing manner. In lesson two of the program, it is stated that “regular use of marijuana may lead to lower achievement, increased tolerance of deviance, more deviant behavior, and greater rebelliousness” (*Project ALERT*, 2021a, p. 69). While deviant behavior is not further defined or explored, this rhetoric is reminiscent of the Temperance Movement. The association of substance use and deviance is a strategy for promoting anti-drug ideology. This ideology is reinforced through sweeping generalizations and oversimplifications of substance misuse. This is specifically seen in the program's discussion of crack and cocaine. “Over time, people who are addicted to cocaine or crack care only about getting high and getting money to support their habit.

Nothing else matters - not friends, family, school, or health.” (*Project ALERT*, 2021a, p.296). The program further claims that “Cocaine addicts will commit robbery, deal drugs, and engage in prostitution to get money for more cocaine” (*Project ALERT*, 2021a, p.326). The rhetoric in these statements is borderline scare tactics, while certainly there are individuals with substance use disorders who struggle with these issues, the framing of these statements is demeaning and stigmatizing. Additionally, there is no discussion of what circumstances can contribute to the use of cocaine or crack other than peer, social, or personal pressures (*Project ALERT*, 2021a, p. 35). This is a clear lack of consideration for all of the social determinants of health.

There are multiple quizzes and informational games used throughout the curriculum to encourage student participation (*Project ALERT*, 2021a). While the information in these activities is presented as fact, this can be misleading. This is seen in the discussion of drug purity. One activity involves a handout with various answers to drug-related questions. The first question asks “How can you be sure that an illegal drug is pure?” (*Project ALERT*, 2021a, p. 229). The provided answer states “You can’t. That’s what is scary... You have no way of knowing what might have been added or how it was made” (*Project ALERT*, 2021a, p. 229). This same question is brought up in a quiz later in the curriculum, the correct answer is listed as “You can’t [know the purity of a substance]. Street drugs are often mixed with other substances.” (*Project ALERT*, 2021a, p. 256). Bringing up substance purity is a legitimate concern. Yet the answer provided is only a half-truth, ignoring the fact that substances can be tested for purity. While testing services aren’t widely available in the United States, research indicates that these services are effective in preventing overdoses and substance-related harm (Laing et al., 2018). Denying the existence of these services is misinformative.

Consequences of Abstinence-Based Programs: Stigma & Stereotypes:

Amplifying the consequences of substance use is a fundamental component in the curriculums for D.A.R.E and Project ALERT. Yet there is a lack of acknowledgment of the negative consequences of abstinence-based programs. The strategies utilized in abstinence-based education depict the phenomenon of *disintegrative shaming* (Brown & Clarey, 2012). Disintegrative shaming in the context of drug education is the utilization of shame and stigmatization to coerce adolescents into abstaining from substance use (Brown & Clarey, 2012). This concept works in tandem with zero-tolerance drug policies by removing students from their school communities rather than providing these individuals with proper resources or support. Disintegrative shaming can have profoundly negative effects on not only the well-being of students but students' perception of their community. Brown & Clarey (2012) describe the components of disintegrative shaming as a multiset process beginning with the utilization of fear or coercion to discourage substance use. The information students receive may contradict the beliefs or experiences of students ultimately resulting in cognitive dissonance and distrust of their educationors.

Abstinence-based programs fulfill an agenda rather than provide education. Drug counselor and writer Julian Cohen asserts that teaching people about substances is education, whereas teaching against substances is propaganda (Cohen, 2012). Abstinence drug programs reflect this model. The strategies and rhetoric of D.A.R.E and Project ALERT are one-sided, teaching against substance use rather than safety. This may be attributed to the need to comply with U.S drug policies, specifically mandated drug education. The idea of individual responsibility and morality are “often used as a tool to discourage and marginalize unhealthy

behaviors such as problematic substance use, which has a collateral consequence of marginalizing and devaluing social groups” (Livingston et al., 2011, p. 40). Reflecting on the rhetoric of both drug education programs and the history of drug policies, there is a clear connection. Shame, fear, and ostracization are used as strategies to discourage substance use. The foundation of abstinence based-educational programs is built on the idea that substances are bad. Having this bias has not led to teaching safety but rather an anti-drug ideology that reinforces stigma and stereotypes.

Both D.A.R.E and Project ALERT make the assertion that adolescents have a “pro-drug mindset” (*Project ALERT*, n.d.-a, p. 2) and therefore education must focus on changing that belief. This is an oversimplistic assumption. Neither program offers evidence that adolescents have this belief; it’s more likely program developers have anti-drug mindsets. Despite acknowledging that most students do not engage in substance use, these programs still attempt to establish anti-drug mindsets as the new social norm. This logic does not make sense considering that the existing social norm for students is to not use substances. Instead, the new social norms established by these programs encourage and reinforce the stigmatization of substances and substance use. This is done by questioning students’ moral values, and implying that substance users are bad community members (*D.A.R.E*, n.d.-b; *Project ALERT*, 2021a). This kind of teaching has consequences. Language can impact society's perception of substance use those impacted by it (Broyles et al., 2014). The language used in abstinence-based education reflects this. *Project ALERT's* discussion of addiction frames those struggling with substance use disorders as malevolent people who don’t care about anything or anyone but drugs (*Project ALERT*, 2021a). Certainly, this can happen with severe cases, but this is an extreme example. Alongside a lack of discussion of the circumstances that led to this situation or how to support these people, there is no room for empathy or even a different perspective. Coupled with the

conflation of substance use and misuse, addiction becomes generalized as “a failure of morals, personality, or willpower” (Livingston et al., 2011).

Research investigating perceptions of substance users has found that people are less likely to believe that someone struggling with a substance use disorder should get treatment if they are referred to as a substance abuser (Kelly et al., 2010). People tended to believe that substance “abusers” were more worthy of punitive punishment like jail time (Kelly et al., 2010). This reflects the influence deprecatative language can have. Due to both the legality and rhetoric surrounding substance use, it’s no surprise that people may have an implicit bias against it. It’s also important to note that most drug education programs exist in predominately white areas (Kumar et al., 2013). Marginalized communities are less likely to receive drug education, and more likely to be arrested for drug offenses (Carson, 2016). As previously discussed, there is no statistically significant difference between the rates of substance use among black and white Americans. The stigmatizing language and associations to undesirable behavior present in drug education, alongside misleading incarceration statistics, can contribute to racial stereotypes and discrimination.

People who grew up bombarded by anti-drug messaging in policy, education, and media are now researchers, healthcare professionals, and educators. Regardless of these individuals' beliefs on substance use, they may have an implicit bias against substance use. This is seen in medicine and substance use scholarship. A prime example of this bias is noted in a 2019 investigation of substance use among college students. The authors discuss not only rates of substance use, but potential interventions and controversies as well (Welsh et al., 2019). This research seems well intentioned, but the authors seemed to be biased against substance use even

for individuals of legal drinking and smoking age. While the authors acknowledge the controversy of mandating drug testing on campus, the authors advocate for urine drug screenings being routinely used in any mental health assessment (Welsh et al., 2019). Especially if students are deemed as “high risk” (Welsh et al., 2019). No criteria are listed for identifying these individuals outside of drug testing them. Not only could this discourage individuals from seeking out mental health assistance, but it may also make clinicians biased regarding student mental health concerns and place symptoms of mental distress on substance use. Again, substance use and abuse are being conflated with one another, there is no acknowledgment of responsible use or interventions aimed at education prioritizing substance safety.

A Different Perspective:

The lack of effectiveness in traditional abstinence-based drug education justifies the need to reevaluate how drug education is approached. If the purpose of drug education is to prevent substance misuse, the rhetoric and evidence utilized must align with this goal. Additionally, mutual respect and acknowledgment of adolescents’ decision-making skills must be present. To reduce drug-related harm, drug education must prioritize safety. Public perspectives regarding substance use and users are slowly changing, yet educational programs have not.

Substance use is a part of American culture and also signifies transitions into adulthood with legal smoking and drinking ages. Substances like alcohol are often involved in celebrations and other social settings. In fact, on an American’s 21st birthday, it is not uncommon for an individual to drink excessively (Gilson et al., 2021). A significant number of Americans use caffeine daily to energize themselves. Many Americans regardless of age are on medications to treat physical and mental health issues. Adolescents being prescribed antidepressants, anxiety, or

ADHD medications is not uncommon (Danielson et al., 2018). While these substances are typically considered legal or even benign, these are all still examples of substance use. The fact that substance use is treated as atypical or socially unacceptable behavior in educational settings does not align with the reality of American culture.

As previously discussed, abstinence-based programs can perpetuate stigma and stereotypes often utilizing shame and fear as a deterrent. A lack of perspective likely contributes to the ineffectiveness of these programs as well. Abstinence-based drug education often makes misguided assumptions regarding its target population. *Project ALERT's* 2021 program overview states that adolescents have “[p]oor decision-making skills. Of particular note is the tendency to discount long-term consequences in making decisions and a general inability to weigh costs and benefits to produce rational decisions.” (*Project ALERT*, 2021b, p. 12). While adolescents don’t always have the best decision-making skills, that does not mean they are incapable of making informed decisions. Having mutual respect and trust among students and educators is important. That assumption that all students have poor decision-making skills will not increase an educator’s or program’s credibility. Education seems disconnected from reality, especially with respect to adolescents’ personal experiences. While abstinence programs do not distinguish substance use and misuse, most adolescents know the difference between a glass of wine every night and a bottle of wine every day. This disconnect is another characteristic of disintegrative shaming, specifically the formation of cognitive dissonance. To resolve this dissonance, students are more likely to discount education that conflicts with reality.

To develop effective substance use programs, education must be consistent with reality and be informed by the perspectives and desires of the target population. For individuals already

engaging in substance use, reducing the potential harm associated with substances should be the ultimate goal. This is where the concept of harm reduction becomes relevant. Harm reduction is self-explanatory. It is a method for preventing substance use-related harm through a variety of interventions, one of which is education. This approach focuses on the idea that substance use exists on a spectrum ranging from beneficial to problematic use (Duncan et al., 1994). The harm reduction perspective focuses on the fact that completely preventing substance use is unrealistic, especially considering that current methods of drug control and education have not stopped drug use (Duncan et al., 1994). Policies and programs centered around drug abstinence can have unintended consequences due to the lack of regulated drug quality controls, drug literacy, and adequate resources for substance misuse treatment (Duncan et al., 1994). Harm reduction education offers a new perspective on substance use education. Rather than taking the position that all drugs are harmful, harm reduction takes more of a neutral stance. This approach has the potential to be less biased and stigmatizing against substances and substance users. This is done through accepting the reality of substance use. Harm reduction education is structured in a way that acknowledges the risks and potential benefits of substance use and provides education on how to minimize harm.

To further this potential curriculum, researchers and educators could benefit from focusing on the perspectives of the education's target populations. A 2017 study investigating the habits and perspectives of teenagers indicated that many individuals using substances are employing harm reduction strategies (Jenkins et al., 2017). There was a variation between the types of harm reduction strategies based on cultural, social, and even geographical location (Jenkins et al., 2017). The biggest commonality among students in this study was a desire for an education that centers around safety (Jenkins et al., 2017). If individuals desire a safety-based education and are

even engaging in harm reduction strategies, drug education should coincide with these behaviors to align education with the reality of adolescents' experiences.

Preliminary studies of comprehensive substance use education in Australia have yielded promising results. While this research ultimately did not reduce the number of individuals already engaging in substance use, there was a statistically significant reduction in substance consumption within that population (Midford et al., 2014). In addition, this study found that students receiving the harm reduction-focused education were overall more knowledgeable about substances and engaged in better communication with their parents or guardians (Midford et al., 2014). Further research is needed to understand the impact and development of harm reduction in American schools, but this research offers insights into the potential benefits of harm-reduction curriculum.

Counterclaims:

A common criticism of comprehensive drug education is that it encourages substance use. This is a justifiable concern but is grounded in wishful thinking. Most parents do not want their children to use substances, but an estimated 46% of high school seniors have engaged in some kind of substance use (Johnston et al., 2022). This is a conservative estimate and does not mean regular use of substances. Students self-reporting their behavior can result in underreporting due to social responsibility bias. Teenage substance use is considered socially undesirable, as a result, adolescents may over report behaviors like abstinence that they perceive as more desirable (Latkin et al., 2017). Programs centering around abstinence do not benefit individuals already engaging in substance use. This indicates that almost 50% of individuals receiving abstinence-based education don't even benefit from short-term effects. Education targeted at teenagers must be realistic and informed by their experiences and perspectives.

A similar argument has been brought up in the area of sexual education. Many parents feared that comprehensive education would encourage students to have sex (Leung et al., 2019). Abstinence-based sexual education used fear, and shame to persuade teens to remain abstinent ignoring the fact that teenagers will still be likely to engage in sexual behavior. Whereas comprehensive sex education prioritizes safety. When comparing these two program models, areas teaching abstinence sexual education experienced high rates of teen pregnancies and STIs (Kohler et al., 2008). Comprehensive sexual education has successfully reduced many risks associated with sex through providing practical knowledge. This model could be utilized when approaching drug education. While the key difference between these two topics involves the legality of substances, that is a part of education. While abstinence drug education centers on consequences, a comprehensive approach would still include risks, but also discuss provide information on how to be safe if someone decides to engage in use. It's also important to note that comprehensive drug education programs shouldn't be compulsory. If individuals have religious or personal objections to program curricula, they should be able to opt-out.

The legality of substances is also a concern in drug education. Comprehensive education should not ignore the legal implications of substances, but to provide quality education, the risks and benefits of substances should be discussed. This is especially important because public opinion and policies are beginning to shift. Many states are now legalizing marijuana, and the state of Oregon has recently decriminalized possession of substances (MacQuarrie & Brunelle, 2021). While essentially all substances are illegal for individuals under 21 years of age, it is not unlikely for underage people to end up in a situation where illicit substances are present.

Comprehensive education would not encourage the use of these substances but rather provide the education and resources necessary for individuals to make informed decisions regarding the use and non-use of substances. It's also important to note that the line between illicit and illicit substances is not solely based on the dangers associated with each substance. This is seen with the schedule classification of Marijuana. Marijuana is classified as a Schedule I drug, meaning it is labeled as having no medical uses and carries a high risk for misuse (Haffajee et al., 2018). Despite this, many states have made marijuana legal for medical consumption and even recreational use. Whereas legal substances like alcohol and tobacco products both carry the risk for misuse and cause high annual rates of preventable deaths (Yoon et al., 2014). While the easy accessibility to alcohol and cigarettes may contribute to the high rate of harm related to these substances, many researchers assert that these substances are significantly more harmful than some illicit substances. Categorizing substances as licit or illicit results in ambiguities because even licit substances can be abused (Duncan et al., 1994). A comprehensive education should acknowledge the implications of substance legality, but place all substances on the same level so as to not demonize users. This does not mean that all substances carry the same risks, but rather risk and legality are not mutually exclusive.

Conclusion:

Humans are naturally inclined to be curious or seek new experiences, so the expectation that people will never try substances is unrealistic. Yet the United States has laws resembling those of the Prohibition Era that focus on preventing and punishing substance use. Despite this, there has been a steady increase in substance use-related deaths, reaching an all-time high in 2021 (CDC, 2021). Clearly, the United States' approach to this issue must be reevaluated. Many

abstinence-based drug education programs place substance use solely on an individual which allows for the denial of systemic issues. This contributes to the morality-based rhetoric and ideology that surrounds substance use, making any kind of progressive change challenging. This issue of problematic substance use intersects with many factors. While addressing the social and environmental factors that may lead to the initiation of substance use is beyond the scope of this paper, it's important to acknowledge how far too often drugs are viewed as a causative agent rather than a correlative outcome.

Education has the potential to vastly improve the understanding of substances and reduce substance-related morbidity and mortality. Education can serve as a primary prevention strategy for addressing substance use safety. The traditional abstinence-based approach to drug education must be reevaluated due to a lack of effectiveness and the potential to exacerbate stigma. There is no universal answer to preventing substance misuse, but there are strategies that can be implemented to reduce the risk of substance-related harm. Research directed towards the development and implementation of safety-based interventions must be conducted to better understand the effectiveness of comprehensive education. Additionally, studies comparing the efficacy of safety-based education and abstinence-based education can be useful for informing the future of drug education. Safety-based interventions must be grounded in science and prioritize realistic approaches to substance safety.

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Mental Health & Substance Use Resources:**SAMHSA National Helpline:**

1-800-662-4357

Free and confidential services are available 24/7

<https://www.samhsa.gov/find-help/national-helpline>

Drug Policy Alliance:

<https://drugpolicy.org/>

Drug Education:

<https://drugpolicy.org/resources/drug-education-resources> Safety First: A Reality-Based Approach
to Teens and Drugs

Harm Reduction:

<https://drugpolicy.org/issues/harm-reduction> NextDistro

NASEN Directory of Syringe Service Programs

Substance Use Disorder Treatment:

FindTreatment.gov and 1-800-662-HELP (4357) Shatterproof ATLAS

Opioid Treatment Program (Methadone) Directory