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What Research Shows Does NOT Work in Substance Misuse Prevention

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University of Wisconsin–Madison
1513 University Avenue
Madison, WI 53706

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At the time of this publication, Miriam E. Delphin-Rittmon, PhD, served as Assistant Secretary for Mental Health and Substance Use in the U.S. Department of Health and Human Services (DHHS) and the Administrator of the Substance Abuse and Mental Health Services Administration.

About This Guide

This guide was created to help substance misuse prevention practitioners identify ineffective approaches to substance misuse prevention.

Developed for the Great Lakes PTTC by Kathryn E. Bruzios, Ph.D.

SHEDDING LIGHT ON INEFFECTIVE STRATEGIES IN SUBSTANCE MISUSE PREVENTION

There are many evidence-based prevention programs and practices available to families, schools, and communities that focus on preventing substance misuse and its associated harmful consequences among youth and young adults. Over time, evaluations of these programs and practices have also identified which ones are ineffective, and in some cases, have adverse effects (e.g., increasing substance use). As prevention practitioners, it is critical to identify ineffective approaches so that resources are better invested, we can mobilize communities to implement effective prevention programs and practices,[1] and we do no harm.

While the prevention field has begun to move away from some ineffective strategies, it is important to continue identifying ineffective, and in some cases, harmful (e.g., unintentionally leading to increases in use[2]) strategies being implemented in communities. The science of prevention is advancing, and so is our understanding of what works and what does not work in substance misuse prevention. This report focuses on more recent research that describes what does **not** work in substance misuse prevention. Specifically, the work summarized in this report is taken from research that has been either peer-reviewed (i.e., evaluated by other experts in the field) or published in the form of white papers (i.e., another research-based document) where the findings did not establish any significant impact on preventing key substance use or risk factor outcomes. For more information on how to find other research on what does and does not work in prevention, review this resource from the Pacific Southwest Prevention Technology Transfer Center, "How to Conduct a Thorough Literature Search."

INEFFECTIVE EDUCATIONAL STRATEGIES

Substance Use Experience Simulations

Have you ever driven by a school during prom or graduation season to see a staged, crashed car parked on the grounds? This is an example of a substance use experience simulation, which is intended to bring awareness to the consequences of using substances and operating a vehicle. Other examples of simulations include using fatal vision goggles (e.g., drunk goggles), crash reenactment, or mock car crashes.

The use of crash reenactments has not been found to be effective.[3,4] In a previous review, mock car crashes have been found to increase risky behavior and are even more ineffective among those individuals at higher risk.[5]

Here's an example. Students were surveyed before and after being exposed to the following 35-minute simulation:

> *Previously wrecked vehicles were obtained and delivered to the intervention site and placed together to create the appearance of an [motor vehicle crash]… student actors dressed in prom attire and [apply makeup] to indicate injuries, and placed in the wrecked vehicles. The wrecked vehicles are then covered with tarps to prevent the observing students from seeing the scene prior to the event beginning. A scenario of what had occurred is read aloud to the students and a recorded tape of a [motor vehicle crash] is played while the tarps are removed, uncovering the scene for the students. During the scene, the local 911 system is mock activated with the dispatcher being an American Red Cross representative allowing the observing students to hear the exchange. After a few minutes to simulate a real response time, the police arrive on the scene, followed by fire and EMS personnel. An ambulance transports injured victims away from the scene to a location unseen by the students as if they were taking them for treatment at the local hospital. Later, a police officer administers a sobriety test to the intoxicated driver, and the driver is handcuffed and taken to the police car. The county coroner examines the student portraying a fatality and pronounces them deceased on scene. The victim is removed from the car, placed in a body bag, and taken to the hearse. The hearse drives around the area and ends by slowly passing in front of the students observing. During the viewing of the deceased victim by the coroner, dramatic music sets the tone until the hearse drives away (page 85).*[4]

Despite some changes in students' attitudes regarding drinking and driving immediately after the simulation, there were no changes in students' knowledge about the effects of alcohol or behavior around consumption.[4] The lack of knowledge and behavior change impacted through this strategy demonstrates its ineffectiveness in preventing future alcohol use and, subsequently, drinking and driving. Further, one could assume any changes in attitudes seen are related to the immediacy of answering survey questions directly after exposure to the gruesome scenario (see more on fear arousal below) and will be temporary.

Similarly, the use of fatal vision goggles has also been found ineffective in behavior change,[6] and any changes in attitudes towards drinking and driving are not long-lasting.[7] For more on the ineffectiveness of fatal vision goggles, see this white paper from Virginia's Alcoholic Beverage Control Committee and this document from Prevention First.

INEFFECTIVE INFORMATION DISSEMINATION STRATEGIES

When considering the effectiveness of information dissemination, some strategies, such as using clearinghouses to identify evidence-based programs, are useful for prevention practitioners. However, other strategies, such as handing out a brochure to increase knowledge on the effects of alcohol use or hosting a speaking engagement with a person in recovery, are not effective.

Passive Strategies

One-time assemblies/events, including those that offer personal testimonies from individuals in recovery or motivational speakers, have been shown through research to be ineffective. A review by Tobler and colleagues (2000) found that as program intensity increased from low (i.e., 10 hours or less) to medium (i.e., 11 to 30 hours) to high (i.e., 31 to 522 hours), the effectiveness increased. Specifically, programs with between 11 to 30 hours of delivery were more effective than those with 10 or fewer hours of delivery.[8] Thus, this implies that the intensity of one-time assemblies or other one-time delivered events would not be effective.

Moreover, when these one-time events consist of personal testimony speeches delivered by individuals who are in recovery from substance misuse, youth and young adults tend to generalize that all people can recover and be successful after having challenges with substance misuse, causing some youth to believe that if they misuse substances, everything will turn out okay. These speeches often also include other ineffective strategies such as fear arousal,[20,21] one-time events,[8] reinforcing exaggerated substance use norms,[26-28] didactic delivery, [11] and knowledge-only information.[10,11]

Knowledge-based Strategies

Knowledge-based strategies (e.g., education only) provide information (e.g., drug fact sheets) rather than focusing on relevant skill-building to prevent substance misuse. These often contain too much information and use jargon that can overwhelm youth and young adults. Here are some examples from research:

- Parent-based programs that relied on printed material or computer-based approaches for preventing/reducing youth tobacco use had mixed findings.[9]
- Education-only prevention programs and practices that target knowledge or awareness with young people have not been found effective in reducing substance misuse.[10]
- No evidence was found for knowledge-based programs on preventing alcohol misuse.[11]

Campaigns and public service announcements (e.g., “Just Say No”) are other knowledge-based strategies that have been found to be ineffective. In a review of antidrug public service announcements, most were found to have no effect on substance use or actually increased the likelihood of substance use by students.[12]

Myth Busting

Myth busting, while well-intentioned, brings myths to the forefront and makes myths more memorable than facts.[13] When we use myths versus facts strategies, we repeat them, making it difficult to remember which was the myth and which was the fact.[14] More commonly, we see myths vs. facts (or myth vs. reality) in text where the myth is placed in a larger format with the facts displayed in a detailed paragraph underneath it.[14] The following is an example from a university:[15]

MYTH: CANNABIS IS NOT ADDICTIVE.

This manual began by addressing the myth that the first time someone uses, they don't usually experience the negative things that they were told as a youth. This many times leads one to doubt the harmful effects and continue to use the drug. The most popular myth to explore is whether cannabis is addictive. For years, it was believed that cannabis could not be addictive, and many people today still hold that belief to be true. Current research supports that cannabis is both physically and psychologically addictive.

Cannabis meets the criteria established by the American Psychiatric Association and the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV) for substance dependence. A person needs three of the following criteria occurring at any time in the same 12-month period to meet the diagnosis of dependency:

1) Tolerance: needing more of the substance to achieve the same effects or diminished effect with the same amount of the substance. Individuals with heavy use of cannabis are generally not aware of having developed tolerance.

2) Withdrawal symptoms: with cannabis use this can be experienced as irritability, restlessness, loss of appetite, trouble with sleeping, weight loss, shaky hands, and loss of motivation. Some people have displayed increased verbal and physical aggression after one week of not using cannabis.

3) Continuation of use despite the presence of adverse effects: a person continues to use even after they have hurt someone or themselves, have experienced suicidal ideation, relationship problems, etc., related to use.

4) Giving up social, occupational, or recreational activities because of the use of cannabis. Due to the progressive nature of these symptoms, the user does not recognize these changes despite comments and concerns of others. As the use of cannabis increases, a person slowly changes their social group and activities with peers who use about the same, if not more. This tends to normalize use for the person despite the increase in need.

5) The individual may withdraw from family activities and hobbies in order to use the substance in private or to spend more time with substance-using friends. Despite recognizing the role of the substance contributing to a psychological or physical problem, the person continues use.

6) Cannabis is taken in larger amounts or over a longer period of time than intended.

7) There is a persistent desire or unsuccessful efforts to cut down or control substance use.

Although it starts with "MYTH" in large, bold font to get our attention, we skim over the rest of the factual information. Consequently, later, "is not addictive" will most likely be text most recalled.

INEFFECTIVE ENVIRONMENTAL STRATEGIES

Punitive and Zero-tolerance Approaches

Using zero-tolerance policies or enforcing punitive approaches are commonly used as efforts to prevent substance misuse or deter students from using in certain places or during certain times. While a popular approach, it has been found to be ineffective at preventing substance misuse among those youth who have already initiated use.[16,17] While some evidence for school anti-tobacco policies exists, a review of research found evidence that the severity of sanctions was mixed for preventing tobacco use. However, many studies showed no effectiveness for punitive and/or zero-tolerance approaches. In other cases, sanctions were found to actually increase the risk of substance misuse.[18] One report argues that commonly used zero-tolerance policies do not prevent behaviors such as substance use.[19] Instead, by leading to suspensions or other punishments, they may increase other risk factors associated with substance use.

INEFFECTIVE MEDIA STRATEGIES

Fear Arousal

Fear arousal through the use of scare tactics (i.e., using scary/gruesome images or statements that "shock" people into behavior change) or other fear-based messaging has been found ineffective.[20,21]

A review by Prevention Solutions found in U.S. studies:[22]

- Written, fear-based messaging public service announcements for college students did not increase students' intentions to reduce alcohol use
- Unedited dramatization of terminal lung cancer due to cigarette use for college students had no impact
- Graphic images for smoking did not impact students' intentions to quit among those who already smoke

Based on limited evidence, using believable, science-informed content that does not aim to scare or intimidate could be beneficial.[22] However, as we have seen over time, these strategies *have* become more realistic, such as the advertisements from the anti-methamphetamine advertising campaign, the Meth Project. Several states have adopted the Meth Project to prevent methamphetamine use through graphic advertisements. Methamphetamine use, which already showed downward trends, was not further impacted by Meth Project ad.[23,24] A review debunking the Montana Meth Project finds that the project has been associated with increased acceptability/approval of using methamphetamine, decreased perceived risk of using methamphetamine regularly, as well as decreased perceived risk of drug use (i.e., heroin, cocaine, and marijuana).[25]

Reinforcing Exaggerated Substance Use Norms

In line with the exaggerations of substance use consequences, other strategies exaggerate substance use norms, which can lead individuals to believe, for instance, that more of their peers are using substances than in reality. For instance, spreading the message in a community that

vaping among youth increased by 50% (for example, a change from 3% to 4.5 % is a 50% increase) conveys a message to youth that *everyone* vapes. Because norms/beliefs guide behavior, perceptions such as these can lead to increased substance use.[26-28]

Furthermore, strategies that use language that normalizes use, such as "recreational substance use," not only minimize the potential harms of use but also impact social norms as they "may suggest to the population that this kind of use is purely for fun, without or with low relevant negative side effects or loss of control."[26]

INEFFECTIVE PROGRAM CHARACTERISTICS

As we know, prevention programs and practices are not one size fits all, and similarly, there are characteristics of programs that are also ineffective in substance misuse prevention. The following is a list of program characteristics that can be ineffective in substance misuse prevention:

- Didactic delivery methods (vs. interactive methods).[11]
- Programs that are developmentally inappropriate for the population intended to reach.[28,29]
    - For more information on what program characteristics are effective for which age group for school-based prevention, see the review from Onrust and colleagues that evaluates findings from 288 programs.[30]
- Involving caregivers only is less effective than programs that involve both youth and their caregiver(s).[9]
- Grouping together at-risk youth.[31]

WHAT'S NEW?

In recent years, there has been a shift in using digital programs and practices and other applications for substance misuse prevention (e.g., video games, mobile apps, virtual reality). Some digital prevention programs and practices have been successful, including web-based, game-based, and virtual reality-based programs.[32] While there are undoubtedly limitations of in-person or "human-delivered" programs and practices, we should err on the side of caution when using digital programs and practices as they present other barriers, such as to whom these are accessible and evolving technology advancements and still require more evaluations of their effectiveness. For instance, while some specific programs have been found to be effective (e.g., Cannabis eCHECKUP TO GO[33,34]), a review of 14 studies of text messaging programs to reduce tobacco and alcohol use found mixed findings, such that 5 studies had significant differences in substance use behavior outcomes while 8 found no differences.[35] The use of digital platforms for prevention of substance use is an area requiring further research and evaluation of long-term outcomes.

CONCLUSION

Ineffective programs, practices, and strategies are those that have been found not to reduce the development of unhealthy behaviors. In some cases, research has found that such programs and practices can lead to increased incidences of substance misuse, which can have long-term health consequences.[36] With strong evidence of ineffectiveness, one may ask why individuals, schools, or communities are still using these programs. Some mistake innate resilience and additional external protective factors for the effectiveness of programming, while others still abide by the notion of "as long as it helps one," which is harmful because it does not acknowledge that ineffective strategies can harm.[5]

It is also important to note that using some of these ineffective programs or strategies may trigger unwanted or unintended emotional responses among participants. For example, watching the mock drunk driving scenario mentioned above may re-traumatize someone whose family member or loved one was in such an accident – substance use or none aside.

If you are looking for the evidence behind a certain program, several evidence-based clearinghouses are available. Some of these websites do not focus specifically on substance use. However, by addressing shared risk and protective factors, some of the programs listed on these sites impact substance misuse outcomes.

- BluePrints for Healthy Youth Development
    - In addition to the evidence-based programs listed, the BluePrints website also offers a list of non-certified programs or programs that have ***not*** met the designated criteria for effectiveness here.
- CASEL Program Guide
- Crime Solutions
- Office of Juvenile Justice and Delinquency Prevention Evidence-based Programs
- Title IV-E Prevention Services Clearinghouse
- The California Evidence-based Clearinghouse for Child Welfare
- What Works Clearinghouse

While each clearinghouse uses its own evaluation criteria, these websites are beneficial because they have evaluated the effectiveness of evidence-based programs and recommend to audiences like prevention practitioners whether programs should be selected. The Results First Clearinghouse from Pennsylvania State University is another resource that summarizes the information across ten national registry databases and compiles and displays key information, including the rating they assigned to each program. Check out this Guide to Online Registries for Substance Misuse Prevention Evidence-based Programs and Practices from the Pacific Southwest Prevention Technology Transfer Center for more information on registries of evidence-based prevention programs, practices, and policies.

If you find you or others are still using an ineffective strategy, use your voice and the resources available to you through this guide and other resources to discuss these concerns with your group and advocate for implementing **WHAT WORKS** in prevention of substance misuse.

ADDITIONAL RESOURCES TO FIND WHAT WORKS IN PREVENTION

Websites and Documents

- Great Lakes Prevention Technology Transfer Center's Prevention Learning Portal
- SAMHSA Finding Evidence-based Practices Resource Center
- NIDA Drug Facts: Lessons from Prevention Research

Research Articles

The following resources are available as indicated and were not included in the write-up of this report.

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