

Greetings, this testimony comes to you from Ashley M. Frazier, Ph.D. I am a prevention scientist and am the Director of Curriculum and Training for D.A.R.E. America. I have been asked to provide a “Proof of Concept” for the D.A.R.E. Fentanyl Presentations that are provided for use by law enforcement. They are free for use by all officers. Additionally, there are D.A.R.E. Classroom lessons that are available to certified D.A.R.E. Officers that include more interactive activities. These are available for elementary, middle school, high school, and college students, as well as a community/parent presentation. Although they are all adjusted to be developmentally appropriate for the target age, they have several elements in common, and I will discuss them as a universal element.

The D.A.R.E. fentanyl classroom lessons and presentations were developed, as all of our lessons are, using the logic model that the core curricular components are based on. That logic model follows this brief narrative. Although the presentations are not as interactive as the classroom lessons, they utilize the strategies of:

Social norms: Helping students accurately perceive that peers are not using illicit substances has strong evidence supporting it.

Normative Beliefs	$r = -.41$ combined drugs (Fearnow-Kenney et al., 2000) $r = -.36$ alcohol, $r = -.36$ tobacco, $r = -.35$ marijuana (Hansen et al., in press) $d = -.17$ alcohol, $d = -.14$, tobacco, $d = -.23$ marijuana (McNeal & Hansen, 1999)	Strong
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Beliefs About Consequences: The message that “One Pill Can Kill” and information about fentanyl and adulteration helps students understand that the consequences about experimenting with substances, even casually, has moderate to strong evidence supporting it.

Beliefs About Harmful Consequences	$r = -.15$ alcohol, $r = -.05$ tobacco, $r = -.25$ marijuana (Derzon, 2000) $r = -.31$ combined drugs (Fearnow-Kenney et al., 2000) $r = -.17$ alcohol, $r = -.26$ tobacco, $r = -.30$ marijuana (Hansen et al., in press) $d = -.17$ alcohol, $d = -.14$, tobacco, $d = -.23$ marijuana (McNeal & Hansen, 1999)	Moderate to strong
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Lifestyle Incongruence: Using a case study to help students envision a peer’s life interrupted can help them imagine their own future and examine whether their own current behavior is congruent or aligned with what they desire. This mediator has strong evidence supporting it.

Lifestyle Incongruence	$r = -.40$ combined drugs (Fearnow-Kenney et al., 2000) $r = -.30$ alcohol, $r = -.48$ tobacco, $r = -.39$ marijuana (Hansen et al., in press) $d = -.18$ alcohol, $d = -.16$, tobacco, $d = -.25$ marijuana (McNeal & Hansen, 1999)	Strong
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Following this is a logic model developed in conjunction with Prevention Strategies and the University of North Carolina Greensboro during a previous evaluation of the D.A.R.E. curricula. It is a useful framework for understanding why and how the curricula “works” and is used for developing all new lessons.

Thank you. I am happy to answer any questions you may have.

D.A.R.E. kiR Logic Model

William B. Hansen
Prevention Strategies

The purpose of this document is to present logic models for kiR_E and kiR_M. Three elements are reflected in the logic models that are presented: (1) targeted mediators, (2) the statistical strength of mediators as correlates or predictors of outcome variables and (3) moderators of effectiveness, such as fidelity, engagement and adaptations to the program. The intent is for the logic model to serve as the basis for the survey instrument design.

Targeted and Implied Mediators.

The first element is the extent to which both programs place emphasis on a variety of theoretical components that serve as targeted mediators. This reflects the “law of mediated effects” (Hansen & McNeal, 1996). Interventions do not change behavior directly; change occurs only because interventions are effective first at changing psychosocial or environmental conditions. These changes in turn then account for changes in behavior. Extent of targeting reflects the number of sessions in which the variable is presented in instruction. The curriculum guides provide summaries of concepts addressed in instruction or address concepts otherwise known in the research literature.

kiR_E includes the following core concepts that undergird the intervention:

- Self-efficacy in responding when under stress or when experiencing peer pressure (addressed in 6 lessons; *peer pressure refusal skills*)
- Knowledge of risks associated with alcohol, tobacco and other drug use and consequences that may follow use (addressed in 6 lessons; *beliefs about consequences*)
- Decision-making skills associated with making wise and responsible choices (addressed in 10 lessons; *decision making skills*)
- Motivation to be safe and responsible citizens, especially regarding bullying (addressed in 3 lessons; *self-efficacy to report bullying*)
- Normative beliefs about alcohol, tobacco and other drug use such that there is a message that use is rare among same age peers (addressed in 1 lesson; *normative beliefs*)

These concepts do not match precisely the list presented elsewhere in the kiR_E curriculum guide, but are relatively close.

kiR_M includes the following core concepts that undergird the intervention:

- Self-efficacy to respond successfully to peer pressure using specific strategies; Refuse, Explain, Avoid and Leave (addressed in 9 lessons; *peer pressure refusal skills*)
- Decision-making skills applied to selecting specific strategies to respond to peer pressure and challenging situations (addressed in 10 lessons; *decision-making skills*)
- Social skills, including communication and assertiveness (addressed in 2 lessons; *general social skills; general assertiveness skills*)
- Beliefs about vulnerability to harmful consequences of substance use (addressed in 9 lessons; *beliefs about consequences*)
- Perceived low-use and unacceptability-TF-use norms among same-age peers (addressed in 3 lessons; *normative beliefs*)

kiR_M concepts align more closely with program content than did kiR_E concepts.

In addition to mediators specifically targeted by program lessons, I propose that three additional mediators be considered in light of what the general thrust of what all prevention programs appear to target related to changing attitudes. These attitudinal concepts include *intentions to use* and *perceived lifestyle incongruence* (Hansen & Hansen, 2016). A third mediator, *parental attentiveness*, is implied with the use of take home activity sheets that are available in one form or another for both kiR_E and kiR_M.

Strength of Mediators.

The second element is the degree to which targeted mediators having sufficient statistical support to warrant a belief that the variables can be potent change agents. This reflects the “law of maximum expected potential effect” (Hansen & McNeal, 1996). The potential effectiveness of any targeted mediator is dependent on the strength of statistical relationship between it and the behavior that is targeted for change. Some variables are strong predictors of behavior and, when changed, can produce large effects in behavior. Other variables are weak predictors of behavior. No matter how much a program may change weak targeted mediators, only small changes in outcome will be observed.

The graphic (Figure 1) shows the potential that three hypothetical mediators may have on behavioral outcomes. When an intervention is effective in changing mediators, bigger effects will be seen upon completion as represented by *Behavior Effect Size*. Magnitude of effect is dependent on what mediators are targeted and how large an effect can be achieved with each. *Mediator Effect Size* may vary depending on how well an intervention addresses the mediator. However, even if an intervention has a powerful effect on changing a weak targeted mediator, only a weak overall effect in terms of changing behavior will be observed (see the line associated with

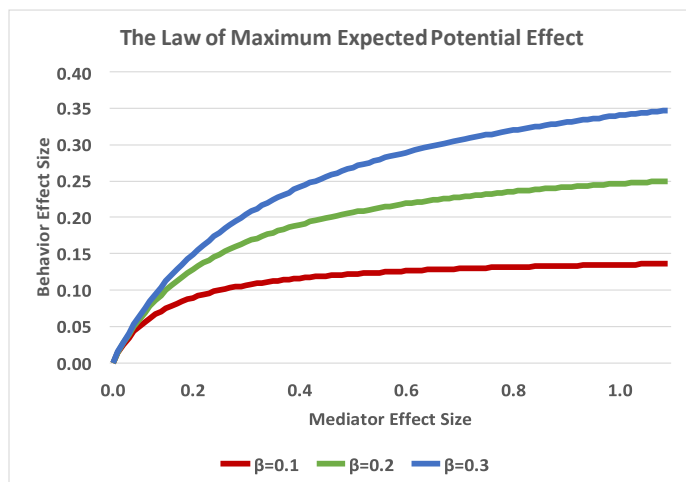


Figure 1

$B=0.1$). On the other hand, a strong mediator is much more capable of producing a large behavioral effect (see the line associated with $B=0.3$).

There is now a significant accumulation of research to allow us to classify many of the mediators targeted by kiR_E and kiR_M in terms of their potential to achieve desired behavioral outcomes. We drew reports from several studies that provided a means of estimating strength of relationship. A meta-analysis conducted by Derzon (Derzon, 2000) provided summary estimates of correlations from numerous individual studies. Several studies were conducted by research with whom I am affiliated that either examined variables collected from a single study (Fearnow-Kenney, Hansen, & McNeal, 2000; McNeal & Hansen, 1999) or used data that have been integrated from numerous other primary studies (Hansen, Saldana, Chen, & Ip, in press). Results presented for the latter study were calculated afresh from the integrated dataset. Where the afore mentioned studies did not contribute sufficiently or where I knew of other studies that addressed relationships between mediators and drug use, I also included results from other relevant studies (Griffin, Botvin, Scheier, Epstein, & Doyle, 2002; Wills, Baker, & Botvin, 1989). Additional studies were examined to document the role of parental attitudes or attentiveness on drug use (Ary, Tildesley, Hops, & Andrews, 1993; Hansen et al., 1987; Miller-Day & Kam, 2010). Finally, I searched out studies that reported about bullying and self-efficacy and included findings from these studies in the analyses (Kokkinos & Kipritsi, 2012; Thornberg & Jungert, 2013). The following table reports results.

Except for self-efficacy and bullying response, all other relationships between mediators and behaviors are expected to be negative; more of a mediator is associated with less of a behavior. Thus, when a positive relationship (signaled with a plus “+”), the relationship would be in an iatrogenic direction. That is, having more of the mediated quality would increase risk. We note that these findings are “opposite” from what is expected in the summary column. Correlations are denoted with the symbol “ r ”, regression coefficients with “ β ” and Cohen’s d with “ d ” (Cohen, 1960). In the case of data from McNeal and Hansen (1999), it should be noted that these results represent longitudinal analyses.

All other coefficients represent concurrent relationships.

CONSTRUCT	STATISTICAL FINDINGS	SUMMARY
Beliefs About Harmful Consequences	$r = -.15$ alcohol, $r = -.05$ tobacco, $r = -.25$ marijuana (Derzon, 2000) $r = -.31$ combined drugs (Fearnow-Kenney et al., 2000) $r = -.17$ alcohol, $r = -.26$ tobacco, $r = -.30$ marijuana (Hansen et al., in press) $d = -.17$ alcohol, $d = -.14$, tobacco, $d = -.23$ marijuana (McNeal & Hansen, 1999)	Moderate to strong
Bullying Self-Efficacy	$r = -.15$ bullying (Kokkinos & Kipritsi, 2012) $r = -.47$ defender behavior (Thornberg & Jungert, 2013)	Moderate to strong
Decision Impulsiveness	$r = -.22$ alcohol, $r = -.15$ marijuana (Derzon, 2000)	Moderate
Decision Making Skills	$r = -.18$ combined drugs (Fearnow-Kenney et al., 2000) $r = -.12$ alcohol, $r = -.13$ tobacco, $r = -.10$ marijuana (Griffin et al., 2002) $r = -.18$ alcohol, $r = -.18$ tobacco, $r = -.07$ marijuana (Hansen et al., in press) $d = -.09$ alcohol, $d = -.12$, tobacco, $d = -.15$ marijuana (McNeal & Hansen, 1999)	Moderate
General Assertiveness Skills	$\beta = +.18$ alcohol, $\beta = +.08$ (Wills et al., 1989)	Opposite
General Social Skills	$r = +.01$, alcohol, $r = +.08$ tobacco, $r = -.05$ marijuana (Derzon, 2000) $d = +.11$ alcohol, $d = +.03$, tobacco, $d = +.05$ marijuana (McNeal & Hansen, 1999)	None to opposite
Intentions/Commitment	$r = -.47$ combined drugs (Fearnow-Kenney et al., 2000) $d = -.33$ alcohol, $d = -.18$, tobacco, $d = -.24$ marijuana (McNeal & Hansen, 1999) $r = -.60$ alcohol, $r = -.59$ tobacco, $r = -.50$ marijuana (Hansen et al., in press)	Strong
Lifestyle Incongruence	$r = -.40$ combined drugs (Fearnow-Kenney et al., 2000) $r = -.30$ alcohol, $r = -.48$ tobacco, $r = -.39$ marijuana (Hansen et al., in press) $d = -.18$ alcohol, $d = -.16$, tobacco, $d = -.25$ marijuana (McNeal & Hansen, 1999)	Strong
Normative Beliefs	$r = -.41$ combined drugs (Fearnow-Kenney et al., 2000) $r = -.36$ alcohol, $r = -.36$ tobacco, $r = -.35$ marijuana (Hansen et al., in press) $d = -.17$ alcohol, $d = -.14$, tobacco, $d = -.23$ marijuana (McNeal & Hansen, 1999)	Strong
Parental Attitudes/Attentiveness	$\beta = -.20$ alcohol (Miller-Day & Kam, 2010) $\beta = -.13$ alcohol, $\beta = -.13$ cigarettes, $\beta = -.21$ marijuana (Hansen et al., 1987) $r = -.12$ alcohol, $\beta = -.13$ cigarettes, $\beta = -.07$ marijuana (Hansen et al., in press)	Weak to moderate
Peer Pressure Refusal Skills (Self-Efficacy)	$r = -.21$ combined drugs (Fearnow-Kenney et al., 2000) $r = -.37$ alcohol, $r = -.28$ tobacco, $r = -.21$ marijuana (Hansen et al., in press) $d = -.23$ alcohol, $d = -.14$, tobacco, $d = -.14$ marijuana (McNeal & Hansen, 1999)	Moderate to strong

Mediator Logic Model.

The following logic model (Figure 2) portrays the combined emphasis given to mediators by kiR_E and kiR_M. The thickness of lines going from the program to the mediators and the deepness of color reflects the number of sessions in which that mediator is the direct target of intervention. The thickness of lines going from each mediator to the outcomes reflects the strength of observed relationships reported above. Note that assertiveness and communication skills have been excluded because research in the table above suggests there is no potential relationship between these skills and targeted outcomes.

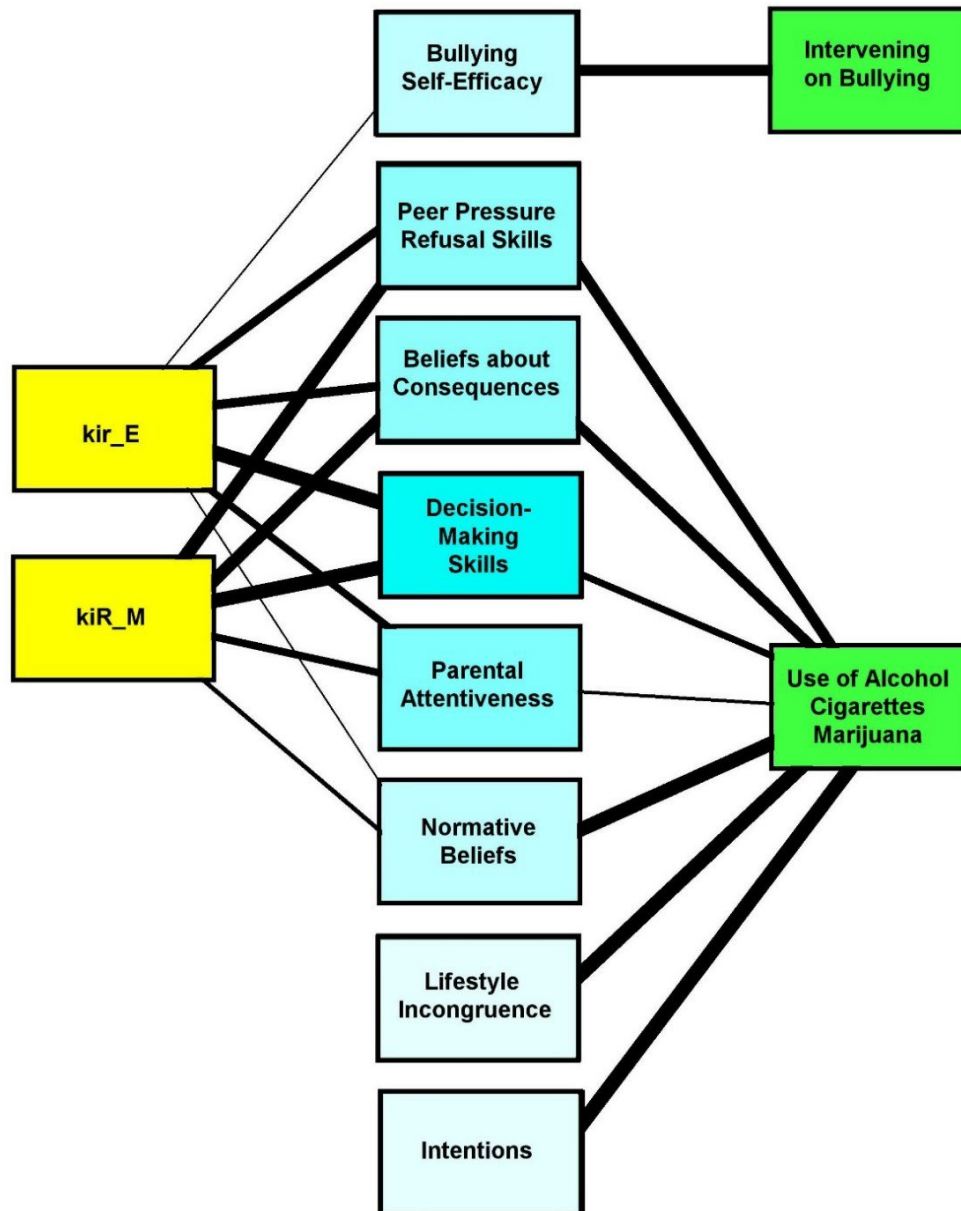


Figure 2

It should be noted that there may be other ways to characterize the strength of the intervention on the various mediating variables. Clarity of concepts, potential to achieve objectives and salience to students may clearly also play a role in the intensity of the program that is delivered. From a measurement perspective, the assigned paths from program to mediator only suggest that each should be measured. Analyses will ultimately reveal the potential of the programs to achieve their goals of changing targeted mediators.

Moderators.

The idea behind a moderator is that an intervention may work better or worse depending on how it is delivered, how delivery is received, and what circumstances accompany its delivery. Moderators are not the target of intervention but, in conjunction with mediators, may explain how a program achieves or fails to achieve effects (Baron & Kenny, 1986). Moderators may thus strengthen or dilute the degree to which an intervention achieves its goals related to changing targeted mediating variables. In the case of the D.A.R.E. kiR_E and kiR_M evaluation, the goal is to maximize potential effectiveness and reduce or eliminate the potential negative impact of the program on targeted mediators.

Research has identified the following broad categories of moderators:

- Fidelity is the degree to which the intervention is delivered as planned (Dane & Schneider, 1998; Durlak & DuPre, 2008; Dusenbury, Brannigan, Falco, & Hansen, 2003; Dusenbury, Brannigan, Hansen, Walsh, & Falco, 2004). Closer adherence is associated with improved program effectiveness (Botvin, Baker, Dusenbury, Tortu, & Botvin, 1990; Wilson, Lipsey, & Derzon, 2003), including improved performance of mediators. D.A.R.E. Officers are extensively trained in the delivery of the program and adherence to the intervention is expected to be high and consistent. Nonetheless, there are always differences in delivery that should be assessed. Notably, the degree to which each activity is delivered and the degree to which learning objectives are achieved with all students should be included. What should be measured: Number of activities taught, the degree to which objectives are achieved, Officer preparation and enthusiasm.
- Adaptations are changes introduced into the delivery of a program. The degree to which any adaptations made are consistent with underlying program theory (its *valence*) has the potential to affect outcomes (Hansen et al., 2013). Making positive adaptations can improve program outcomes (Durlak & DuPre, 2008), but only when they are made relatively rarely (Hansen et al., 2013). D.A.R.E. Officers may make adaptations that should be monitored. What should be measured: The number and valence of additions made to activities.
- Engagement is the degree to which students actively participate in the intervention (Hansen, Fleming, & Scheier, under review). Engagement improves outcomes when students (individually and as a class) attend to and contribute to the program as it is delivered. While kiR is interactive, a lot of engagement depends on a teacher's style and personality. There are likely to be differences in how Officers' attempts at interaction are received by students and classrooms. What should be measured: Student self-report and observer report of engagement.
- Dosage refers to the extent to which students are exposed to the program (Derzon, Sale, Springer, & Brounstein, 2005; Dusenbury et al., 2003). There are inevitably absences and such occurrences as fire drills and other events that change the ability to fully deliver a program. These may all affect outcomes. What should be measured: Number of lessons for which each student is present and (as an integral part of the design) whether students receive both kiR_E and kiR_M or just one of the programs.
- Environment refers to the degree to which parents, the school and the community are supportive of the intervention (Bierman et al., 2010; Low & Van Ryzin, 2014; Rohrbach, Graham, & Hansen, 1993). Environments that are actively supportive are more likely to yield positive results. D.A.R.E. Officers are visitors to the school. The degree to which parents and school teachers and administrators support the Officers may affect program outcomes. What should be measured: School climate, socioeconomic status of the school.
- Teacher background characteristics refer to such issues as teacher training, extent of teacher prior experience specific to the program and with other related tasks, such as experience with coalitions and enforcement. What should be measured: Years of experience

teaching kiR_E and kiR_M, D.A.R.E. Mentor Officer Training, post-high school education, service in narcotics control, military service, non-drug-related youth service experience, Officer gender and ethnicity/race, Officer's beliefs and attitudes about the program.

Figure 3 presents the typical way moderators are hypothesized to operate. Moderators affect the relationships between interventions and mediators directly and behavioral outcomes indirectly. They are therefore expected to have less influence on outcomes than mediators.

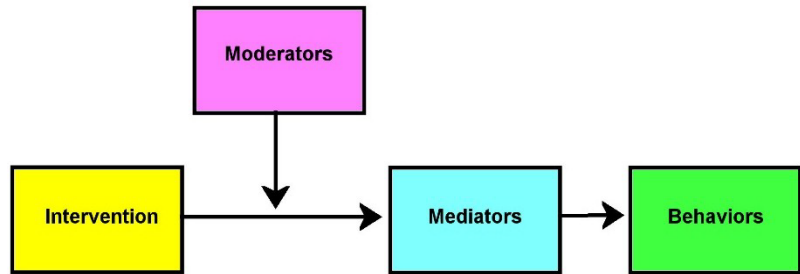


Figure 3

It is worth noting that research often provides descriptive summaries about moderators, but statistical relationships between moderators and mediators are less frequently provided. In the drug prevention literature, the model presented in Figure 3 is rarely formally tested.

In the research literature, the relationships between mediators and behaviors are noted. In the statistics presented in the following table, negative relations reflect worsening outcomes and positive relations reflect improving outcomes. Teacher characteristics is not presented as a separate construct but is rather integrated with other moderators. Coefficient β is the standardized regression coefficient; B is the unstandardized regression weight, r is the correlation coefficient, d is Cohen's (1960) effect size. As would be expected, effects of moderators on mediators are larger than effects on behaviors.

CONSTRUCT	STATISTICAL FINDINGS	SUMMARY
Fidelity	$\beta = +0.04$ implementation fidelity/drinking frequency, $\beta = +0.08$ implementation fidelity/marijuana use (Botvin et al., 1990) $\beta = +0.38$ coherence/drug use meta-analysis (Derzon et al., 2005) $r = +.63$ fidelity/years of experience teaching LST, $r = +.59$ objectives/years of experience teaching LST (Dusenbury et al., 2004) [†] $r = +.18$ adherence/years of teaching (Pankratz et al., 2006) $\beta = +0.17$ implementation quality/aggression meta-analysis (Wilson et al., 2003)	Weak to strong
Adaptations	$R = +.59$ positive adaptations/years of teaching LST (Dusenbury et al., 2004) [†] $r = +.20$ number of positive change in lesson structure/drug use, $r = -.22$ frequency of added steps/drug use, $r = -.46$ number of added examples and stories/drug use (Hansen et al., 2013)	Medium to strong
Engagement	$R = +.59$ observed class engagement/years of teaching experience (Dusenbury et al., 2004) [†] $\beta = +0.27$ classroom-level engagement/composite mediators, $\beta = +0.40$ student-level engagement/composite mediators (Hansen et al., under review) $r = +.12$ engagement/student grades (Reyes, Brackett, Rivers, White, & Salovey, 2012)	Weak to strong

CONSTRUCT	STATISTICAL FINDINGS	SUMMARY
Dosage	$r = +.11$ to $+.18$ extent of exposure to PY-PM/various mediating variables (Bell, Kelley-Baker, Rider, & Ringwalt, 2005) $\beta = +0.14$ program intensity/drug use meta-analysis (Derzon et al., 2005) $d = +0.18$ for core, $d = +0.20$ for core & plus/alcohol, $d = +0.05$ for core, $d = +0.19$ for core & plus/marijuana, $d = +0.10$ for core, $d = +0.21$ for core & plus/cigarettes (Hansen & Dusenbury, 2004) $\beta = +0.01$ Concentrated vs distributed delivery/drug use (Rooney & Murray, 1996) $\beta = +0.19$ number of sessions ≤ 10 vs >10 /drug use (Rooney & Murray, 1996) $d = 0.09$ booster program/drug use (Sussman, Sun, Rohrbach, & Spruijt-Metz, 2012) $\beta = +0.09$ program intensity/aggression meta-analysis (Wilson et al., 2003)	Weak to medium
Environment	$B = -0.08$ socioeconomic status/problem behaviors (Jessor, Van Den Bos, Vanderryn, Costa, & Turbin, 1995) $r = +.10$ school climate/positive bystander behavior re: bullying (Low & Van Ryzin, 2014) $\beta = +.10$ poverty/problem behavior (Hopson & Lee, 2011)	Weak

† Correlations may be inflated because of the small number of cases (N = 11).

Potential Measures.

Wherever possible, we will draw measures from those currently available from Evaluation Lizard (EL). Modifications may be made as needed (ELM). Should measures not be available in Evaluation Lizard, we have either searched for measures in the scientific literature or created new to be developed measures (TBD) that adequately reflect the concept targeted by kiR_E and kiR_M.

Student Survey

Demographics

- Gender (EL)
- Age (10-15 with ½ year options; ELM)
- Ethnicity/Race (EL)

Behaviors (lifetime and past 30-day)

- Alcohol (EL)
- Cigarettes (EL)
- Marijuana (EL)
- Non-prescription Pain Killers (ELM)
- Bullying response (TBD)

Mediators

- Beliefs About Harmful Consequences (EL)
- Bullying Self-Efficacy (TBD)
- Decision Impulsiveness (EL)

- Decision Making Skills (EL)
- Intentions/Commitment (EL)
- Lifestyle Incongruence (EL)
- Normative Beliefs (EL)
- Parental Attitudes/Attentiveness (EL)
- Peer Pressure Refusal Skills (Self-Efficacy) (EL)

Moderator

- Engagement (ELM)

Additional Measures

Measures will be collected in a variety of ways including observation forms (TF), Officer surveys (OS) archived records (AR) and using a thumb drive audio recorder (TDAR).

Fidelity

- Teacher ratings of activities completed (TF)
- Teacher ratings of objectives achieved (TF)
- Teacher ratings of Officer preparation (TF)
- Teacher ratings of Officer enthusiasm (TF)

Adaptations

- Audio recordings of instruction (TDAR)
- Self-reported adaptations and additions to content or methods (OS)

Engagement

- Teacher ratings of student involvement (TF)

Dosage

- Intervention delivery condition (kiR_E, kiR_M, or combined kiR_E + kiR_M)
- Teacher documentation of student absences (TBD)
- Beginning-time ending-time difference from teacher observation (TF)

Environment

- Teacher and Officer ratings of school climate (TBD based on (Konold et al., 2014))
- Median household income (TBD)

Officer Characteristics (Self-reports)

- Years teaching kiR_E and kiR_M (OS)
- Years of post-high school education (OS)
- Belief in and attitude towards kiR methods and objectives (scale TBD; OS)
- Years in narcotics control (OS)
- Years in military service (OS)
- Years of non-drug-specific involvement in youth-focused programming (OS)
- Gender (OS)
- Ethnicity/race (OS)
- Personality profile (introvert/extrovert; light-hearted/serious; measures TBD; OS)

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