

Substance Use: Digital Interventions to Prevent Substance Use among Adolescents, Updated 2026

Community Preventive Services Task Force Finding and Rationale Statement Ratified August 2025

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CPSTF Finding and Rationale Statement

Context

Youth substance use is associated with increased risk for behavioral and academic problems, teen pregnancy, sexually transmitted infections, being involved in or experiencing violence, injuries, and mental health symptoms (such as anxiety and depression) (U.S. Department of Health and Human Services 2016). Preventing or delaying substance use initiation among youth (defined in this review as adolescents ages 10-17 years) reduces later risk for substance use, substance use disorders, and overdose (U.S. Department of Health and Human Services 2016).

Substance use trends in the United States have changed in recent years. There have been increases in illegally-made fentanyl and the availability of other synthetic opioids, misuse of prescription drugs, popularity of e-cigarettes and vaping products, and changes in the legal and regulatory landscape for cannabis (Hoots et al. 2023).

In 2023, patterns of substance use among adolescents varied by grade level and demographic characteristics. Approximately 22% of teens reported current use of alcohol, 17% marijuana, and 4% misuse of prescription opioids (CDC 2024). Three percent of 12th graders reported use of cigarettes and 22% reported vaping within the last 30 days (Miech et al. 2024). Rates of alcohol consumption increased from about 6% in eighth grade to nearly 24% by twelfth grade (Miech et al. 2024). Initiation rates for prescription opioid misuse were higher among females and those identifying as multiracial or “lesbian, gay, bisexual, questioning, or another non-heterosexual identity” (LGBQ+) (CDC 2024).

Prevention interventions delivered through digital devices have the potential to reduce barriers to accessing health promotion resources among adolescents (Rideout & Fox 2018; Villanti et al. 2017). Access to digital devices is widespread among teens, with 95% reporting they own smartphones and 90% having computers at home. Access rates were similar across sexes and racial/ethnic groups (Pew Research Center 2022). Digital interventions can be designed to reduce barriers to engagement by offering anonymity and a non-judgmental environment that may reduce stigma (Taylor & Luce 2003; Johansson et al. 2024; Monarque et al. 2023).

When focused on substance use by adolescents, intervention prevention goals include reducing the initiation, prevalence, and frequency of use (U.S. Department of Health and Human Services 2016). Measures of change in each of these prevention outcomes can be influenced by the substances evaluated, the age of adolescents at baseline and follow-up, and background rates of initiation and use.

Intervention Definition

Digital interventions for substance use prevention deliver information, behavioral instruction, or support to adolescents to reduce the uptake and use of one or more substances. Intervention content must be accessible through a computer, tablet, or smartphone and may be provided as web-based programs, computer or tablet

programs, smartphone applications, text messages, online forums, or a combination of formats. Interventions may provide general prevention content or focus on specific substances (such as alcohol, tobacco, or cannabis). Content may be tailored or interactive (i.e., adolescents enter personal data or make choices and receive feedback) and provided in a single interaction, over multiple modules or sessions, or as an ongoing resource. Interventions may be delivered to adolescents directly, at school, at home, or through community settings. Digital interventions may be complemented by additional activities such as screening for substance use, brief interpersonal counseling, and classroom-based instruction or discussion sessions.

Community Preventive Services Task Force Finding (August 2025)

The Community Preventive Services Task Force (CPSTF) recommends digital interventions for substance use prevention based on sufficient evidence of effectiveness in reducing current or past month alcohol use, and binge drinking. Digital interventions also reduced the frequency of cannabis use, tobacco including electronic cigarette use, and prescription drug misuse among adolescents. Evaluated interventions showed inconsistent effects on reported rates of initiation for all substances and current use for substances other than alcohol. Additional studies are needed to determine the effectiveness of digital interventions for these outcomes.

Rationale

Basis of Finding

The CPSTF recommendation is based on evidence from a systematic review of 45 studies, 20 of which were conducted in the United States (search period from January 2000 to July 2023).

The systematic review team evaluated substance use measures reported in the included studies for the following outcome categories:

- 1) Use (prevalence, amount, or frequency) of one or more substances (40 studies)
- 2) Initiation of use for one or more substances (16 studies)

Studies included a median of 1,234 participants (IQR: 543 to 2,134 participants; 45 studies). The median duration of intervention activities was 1.5 months (in 10 studies intervention content was provided in a single session). Most interventions provided multiple sessions or modules (median: 6 sessions, 4.5 hours). The median study evaluation period was 12 months (IQR: 6.0 months, 24.0 months; 45 studies).

Studies used a variety of self-reported measures for substance use outcomes primarily collected through school-based surveys of students. Substance use was typically measured as prevalence or frequency of use in the previous 30 days. Prevalence measures indicated current or recent use of one or more substances. Frequency measures indicated the number of times or episodes of using one or more substances; these measures were often categorized or summed into scale scores. Initiation of substance use was commonly measured based on self-reported lifetime (ever) use.

For both initiation and substance use, the review team generated assessments for each substance type (i.e., alcohol, binge drinking of alcohol, cannabis, tobacco, illicit substances as defined by the study, prescription drug misuse, and combined substance measures as defined by the study). As study data permitted, absolute or relative change measures were calculated, and summary effect estimates were generated. For study outcomes that could not be converted into absolute or relative change estimates, study results were summarized and grouped for a narrative assessment based on the direction of effect and statistical significance.

CPSTF findings are based on both summary effect estimates and narrative assessments for each outcome category and substance type. Evidence showed digital interventions led to meaningful reductions in the prevalence of alcohol use and binge drinking, frequency of alcohol, cannabis, and tobacco use, and frequency of prescription drug misuse (Table 1). Findings for initiation, regardless of substance type, were inconsistent (Table 2).

Table 1. Effects of Interventions on Substance Use Prevalence and Frequency

Substance	Measure	Absolute Change (percentage points) Median estimate (IQI); Number of Studies	Relative Change (%) Median estimate (IQI); Number of Studies	Narrative Results Direction and statistical significance of estimates	Overall Direction of intervention effect
Alcohol	Prevalence of use	-3.55 (-8.43, 2.30); 8 studies	-22.2% (-38.4%, -8.4%); 8 studies	NA	Favors the intervention
	Frequency of use	NA	-22.9% (IQI: -49.7%, 25.8%); 13 studies	1 significant and favorable, 4 favorable, 7 no change	Favors the intervention
	Binge drinking	-1.40 (-4.90, 2.83); 11 studies	-16.8% (-30.5%, 4.9%); 11 studies	3 significant and favorable, 6 favorable, 3 no change	Favors the intervention
Cannabis	Prevalence of use	0.65 (-2.73, 1.40); 6 studies	7.1% (-28.4%, 16.8%); 6 studies	NA	No effect
	Frequency of use	NA	-46.3% (-97.8%, -16.0%); 10 studies	2 significant and favorable, 2 favorable, 2 no change	Favors the intervention
Tobacco	Prevalence of use	-1.59 (-3.98, 5.13); 6 studies	-12.8% (-42.9%, 14.9%); 6 studies	1 no change	Inconsistent results

	Frequency of use	NA	-38.8% (-90.6%, -7.9%); 9 studies	2 favorable and significant, 1 favorable, 1 no change, 1 unfavorable	Favors the intervention
Illicit substances	Prevalence of use	NA	NA	NA	NA
	Frequency of use	NA	NA	2 significant and favorable, 1 favorable, 2 no change	Inconsistent results
Prescription drug misuse	Prevalence of use	NA	NA	NA	NA
	Frequency of use	-0.14 episodes (-2.89, -0.05 episodes); 4 studies	-127.1% (-622.3%, -63.6%), 4 studies	1 no effect	Favors the intervention
Combined measures [#]	Prevalence of use	1.70 (Range: 1.10, 3.90); 2 studies	25.2% (Range 4.4%, 61.1%); 3 studies	1 favorable and significant, 1 no change	Inconsistent results
	Frequency of use	NA	NA	6 favorable and significant, 2 favorable, 2 no change	Favors the intervention

IQI: Interquartile Interval

[#]Findings from studies that measured self-reported use or frequency of one or more substances selected from a list (for example, "use of one or more illegal drugs such as marijuana, cocaine, amphetamines, methamphetamines, barbiturates, inhalants, opioids, etc.").

NA: Not applicable

Table 2. Effects of Interventions on the Initiation of Substance Use

Substance	Measure	Absolute Change (percentage points) Median estimate (IQI); Number of Studies	Relative Change (%) Median estimate (IQI); Number of Studies	Narrative Results Direction and statistical significance of estimates	Overall Direction of intervention effect
Alcohol	Initiation	+0.85 percentage points (IQI: -4.98, 5.03); 3 studies	Relative: -1.8% (IQI: -18.1%, 5.5%); 4 studies	1 favorable, 1 unfavorable and significant	Inconsistent results
Cannabis	Initiation	+1.40 percentage points (IQI: -3.68, 2.92); 4 studies	+8.9% (IQI: -20.2%, 121.7%); 4 studies	1 favorable	Inconsistent results

Tobacco	Initiation	-0.05 percentage points (-2.30, 1.20); 5 studies	+1.04% (IQI: -24.8%, 7.2%); 5 studies	1 significant and favorable, 3 favorable, 1 no change, 1 unfavorable 1 unfavorable and significant	Inconsistent results
Illicit substances	Initiation	NA	NA	5 no change	No effect
Prescription drug misuse	Initiation	NA	NA	NA	NA
Combined measures [#]	Initiation	NA	NA	NA	NA

IQI: Interquartile Interval

[#]Findings from studies that measured self-reported initiation of use of one or more substances selected from a list (for example, "use of one or more illegal drugs such as marijuana, cocaine, amphetamines, methamphetamines, barbiturates, inhalants, opioids, etc.")

NA: Not applicable

CPSTF judged the effect sizes were consistent and meaningful for:

- reductions in the prevalence of alcohol use, and binge drinking.
- reductions in the frequency of use for alcohol, binge or heavy drinking, cannabis, tobacco use and prescription drug misuse.

No studies evaluated effects on the prevalence of illicit substance use, and studies that examined changes in the frequency reported effects that were inconsistent. Two studies showed a reduction in the frequency of e-cigarette use with one study reporting significance.

Table 3 reports all other outcomes. Results were in the favorable direction for reducing anxiety symptoms, perceived stress, and alcohol-related harms and consequences but the use of different measures (i.e., scale scores) across studies for these outcomes and uncertainty about their meaningfulness prevented a determination on effectiveness. Results were inconsistent for outcomes measuring the development of substance use disorders, and reducing symptoms of depression and other symptoms related to mental health. The intervention showed no effect on reducing harms or consequences related to cannabis use. There were not enough studies for the outcomes on quality of life, sexual risk behaviors, truancy, and anti-social behaviors (i.e., alcohol-related troubles and delinquency).

Table 3. Effects of Interventions on Morbidity, Mental Health Symptoms, Risk Behaviors, and School-related Outcomes

Outcome	Number of Studies (Estimates)	Narrative Evidence	Overall Direction of Effect
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		Direction and Reported Statistical Significance of Study Outcomes	
Anxiety symptoms	3 (6 estimates)	1 significant and favorable, 3 favorable, 2 no change	Favors the intervention
Perceived stress	3 (3 estimates)	3 significant and favorable	Favors the intervention
Alcohol-related harms and consequences	5 (6 estimates)	3 significant and favorable, 1 favorable, 2 no change	Favors the intervention
Development of substance use disorders	3 (8 estimates)	1 significant and favorable, 1 favorable, 3 no effect, 3 unfavorable	Inconsistent Results
Depression symptoms	4 (7 estimates)	3 favorable, 4 no change	Inconsistent Results
Other symptoms related to mental health	3 (5 estimates)	2 significant and favorable, 3 no change	Inconsistent Results
Cannabis-related harms and consequences	3 (5 estimates)	1 favorable, 4 no change	No effect
Quality of life or well-being	2 (2 estimates)	1 significant and favorable 1 no change	Too few studies
Sexual risk behaviors	2 (3 estimates)	1 significant and favorable, 1 favorable, 1 no effect	Too few studies
Truancy	1 (1 estimate)	1 significant and favorable	Too few studies
Anti-social behaviors: Alcohol-related troubles	1 (1 estimate)	1 significant and favorable	Too few studies
Anti-social behaviors: Delinquency	1 (1 estimate)	1 favorable	Too few studies

Applicability and Generalizability Issues

Intervention Settings

The CPSTF finding is applicable to the use of digital interventions implemented in school, clinic, home, and online settings in the United States. Setting of intervention varied across the 45 studies with nine studies taking place in schools, five studies online, three studies in clinics, and one study in a home/family setting; no studies

implemented interventions in community locations alone. Interventions in 15 studies were delivered in both schools and online, and 13 studies involved a mix of locations other than school or online. Overall, effects were similar across evaluated implementation settings. Twenty studies were conducted in the United States, with findings from this subset indicating effectiveness.

Most studies did not identify whether the intervention was implemented in rural, suburban, or urban communities. Of studies that reported this information, 11 took place in urban or suburban areas and one took place in a rural setting; six studies were in a mix of urban, suburban, and rural areas. The intervention is applicable to urban and suburban areas, and likely applicable to rural areas, though more evidence for rural areas is needed.

Population Characteristics

The CPSTF finding is applicable to digital interventions provided to adolescents (ages 10-17 years at the time of intervention). The median age of study youth at baseline was 14.2 years (38 studies). Studies evaluated adolescents in middle school (n=13), high school (n=21) and combined levels (n=11). Findings are applicable to males and females as sex was evenly distributed across the studies. Three studies stratified effectiveness by sex and results were inconsistent. Only one study collected information on adolescents who identify as a sexual minority.

The CPSTF finding is applicable to White, Black or African American, and Hispanic or Latino adolescents. None of the individual studies compared results by race/ethnicity, but several racial/ethnic populations were represented among participants. Among the 20 studies conducted in the United States, participants identified as White (median 64%; 15 studies), Black or African American (median 17%; 17 studies), Hispanic or Latino (14%; 18 studies), Asian (5%; 11 studies) American Indian (2%, six studies), or other (8%, 12 studies). More research on effectiveness is needed for American Indian and Alaskan Native, Native Hawaiian and Pacific Islander, and Asian adolescents. More evidence is needed to determine effectiveness based on household socioeconomic status. Only two studies provided data on free (14%), or reduced cost (38%) lunch program participation. Five studies reported parents' education level with a median of 51% of parents reporting some college or more but results could not be analyzed across studies. More complete reporting of participant and household demographic characteristics would help address important evidence gaps.

Intervention Characteristics

The CPSTF finding is applicable to digital interventions providing general substance use prevention content (19 studies) or focused on a specific substance (23 studies). Digital interventions were effective when implemented alone (34 study arms), or when combined with additional non-digital interventions (15 study arms). Interventions were effective when provided through school (26 studies) or without school involvement (19 studies).

There was similar evidence of effectiveness for interventions providing tailored content (38 studies) and interventions that did not provide content tailored to adolescents (7 studies). Interventions lasting 1 month or longer (29 studies) were effective. Evidence on effectiveness was less consistent for interventions lasting less than 1 month (10 studies). Similarly, evidence of effectiveness was less consistent for interventions providing a single session or module (10 studies) compared to interventions providing multiple sessions or modules (median: 6 sessions; 34 studies). More evidence is needed to determine whether short duration or single session interventions are effective.

Data Quality Issues

There are several important limitations in the studies included in this review. Study designs used to evaluate digital interventions included both individual (16 studies) and group randomized trials (29 studies). Despite randomization, studies frequently identified differences in participant characteristics between intervention and comparison groups at baseline. Important demographic characteristics were infrequently reported for participating parents and caregivers (e.g., income, education), which limited stratified assessments on effectiveness for these factors. Participant attrition was a common limitation; the median retention rate at follow-up was 74.9% (IQI: 65.6%, 82.5%).

Studies differed in substances and risk behavior outcomes, the measures used to evaluate change, and the reporting of results. These issues limited the review team's ability to compare study findings, consolidate effect estimates, and calculate summary effect estimates for the outcomes of interest. Almost all outcomes were based on self-reported substance use and other risk behaviors among participating youth, which introduced potential bias in these measures.

Potential Benefits

CPSTF did not postulate any additional potential benefits of digital interventions to prevent substance use among adolescents. Two of the included studies in this review reported additional benefits. Adolescents in one study perceived that drug use among peers decreased (Schwinn et al. 2019). A second study documented a decrease in self-reported alcohol consumption by mothers participating in the study with their adolescent children (Schinke et al. 2009). No additional benefits were described or evaluated in the broader literature.

Potential Harms

CPSTF did not postulate any potential harms of digital interventions to prevent substance use among adolescents. Some studies in this review evaluated potential harms associated with digital interventions. Two studies incorporated systems to monitor adverse events, yet reported no identified harms (Champion et al. 2023, Griffin et al. 2022). Authors in two studies discussed the possibility that intervention content could inadvertently encourage substance use behaviors among some adolescents (Malmberg et al. 2015, Bannink et al. 2014). One study determined that some participants experienced discomfort from information about riding with an impaired driver (Knight et al. 2019). No harms were identified in the broader literature.

Considerations for Implementation

The following considerations for implementation are drawn from studies included in the existing evidence review, the broader literature, and expert opinion, as noted below.

Programs implemented within schools often encounter logistical challenges. These include constraints on available time for program delivery (Griffin et al. 2022), competing academic demands, and limited access to resources such as computer labs (Buller et al. 2008, Champion et al. 2018, Vogl et al. 2014).

None of the included studies addressed the increasing influence of social media on adolescents (U.S. Department of Health and Human Services 2023). Given the rapidly evolving nature of social media platforms and digital communication, this represents a significant gap in current research. Messages promoting substance use are commonly posted on social media (Rutherford et al. 2023), making this an important subject for parent communication and monitoring skills and practices. Future interventions may also want to use social media to promote prevention messaging (Evans et al. 2020).

Family-based interventions were implemented in 12 of the 45 included studies. CPSTF recommends [family-based interventions that provide instruction or training to parents and caregivers to enhance substance use preventive skills and practices for children and adolescents](#).

CPSTF also recommends intervention approaches related to the following:

- [Preventing Excessive Alcohol Use | The Community Guide](#)
- [Reducing Tobacco Use | The Community Guide](#)

Implementation Resources

Several organizations offer implementation guidance for supporting digital interventions and for specific interventions to address substance use:

- [Program Reviews | The Center for Technology and Behavioral Health \(c4tbh.org\)](#), a registry synthesizing current research on digital health technologies for substance use disorders and co-occurring conditions.
- [Blueprints Programs | Blueprints for Healthy Youth Development](#), a registry of scientifically rigorous and accessible prevention and intervention programs aimed at addressing youth health and behavior issues
- [Voices of Youth, Substance Use Prevention Resources for Youth and College Students | SAMHSA](#), contains resources for Middle School Youth (Ages 10–13) and High School Youth (Ages 14–18)
- [Talk. They Hear You. Campaign | SAMHSA](#) — a comprehensive campaign, including digital interventions, aims to reduce underage drinking and substance use among youths under the age of 21 by providing parents and caregivers, educators, and community members with resources to discuss substance use with their children.
- [Operation Prevention | DEA](#), in partnership with Discovery Education provides digital lesson plans, virtual field trips, parent resources, and an interactive drug facts challenge.

- [Teen-Safe](#), an online resource offering tips for preventing teen prescription drug abuse; it's part of a broader initiative aimed at safe medication practices across all ages.

Specific Model Resources:

- [eCHECKUP TO GO](#), a suite of interactive online tools designed to encourage healthier choices regarding alcohol, marijuana, and other substances relevant for older adolescents.
- [Smokefree Teen | National Cancer Institute](#), aimed at helping teens quit smoking. It offers resources including text message programs, apps, and an online guide.

Evidence Gaps

CPSTF identified several areas that have limited information. Additional research and evaluation could help answer the following questions and fill remaining gaps in the evidence base.

CPSTF identified the following questions as priorities for research and evaluation:

- How effective are interventions in reducing the number of adolescents who report the initiation or current use of one or more substances?
- How effective are interventions for American Indian, Alaskan Native, Native Hawaiian, Pacific Islander, and Asian adolescents and for adolescents who identify as a sexual minority?
- How effective are interventions in rural communities, or when provided to individuals with lower household incomes or family educational attainment?

Remaining questions for research and evaluation identified in this review include the following:

- How effective are interventions in reducing development of substance use disorders?
- How effective are interventions in improving outcomes related to substance use including mental health symptoms, educational outcomes such as attendance and attainment, sexual risk behaviors, and encounters with the criminal justice system?
- How effective are interventions in reducing initiation and use of illegal substances among adolescents?
- How effective are interventions in reducing polysubstance use among adolescents?
- How effective are digital interventions when delivered in community-based settings?
- How effective are interventions among adolescents with a disability?
- Which characteristics of digital interventions are associated with meaningful and consistent effects on initiation use, or frequency of use of substances?

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Disclaimer

The findings and conclusions on this page are those of the Community Preventive Services Task Force and do not necessarily represent those of CDC. CPSTF evidence-based recommendations are not mandates for compliance or spending. Instead, they provide information and options for decision makers and stakeholders to consider when determining which programs, services, and policies best meet the needs, preferences, available resources, and constraints of their constituents.

Document last updated July 30, 2026

Appendices:

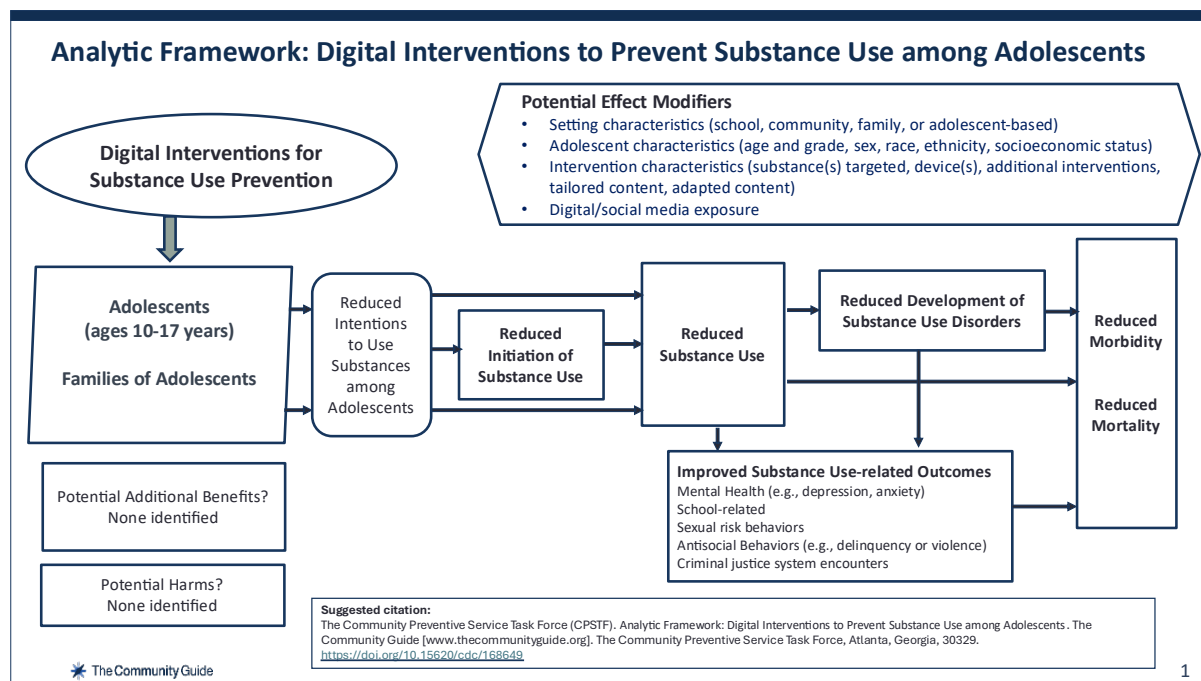
Substance Use: Digital Interventions to Prevent Substance Use among Adolescents

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Appendix A

Analytic Framework: Digital Interventions to Prevent Substance Use among Adolescents



Text Description

Analytic Framework: Digital Interventions to Prevent Substance Use among Adolescents

Digital interventions for substance use prevention are implemented and directed at adolescents and families of adolescents. These interventions are expected to reduce intentions to use substances among adolescents that lead to reductions initiation and use of substances.

- Reduced use is expected to reduce the development of substance use disorders, reduces morbidity and mortality, and improves substance use-related outcomes like mental health, school-related outcomes, sexual risk behaviors, antisocial behaviors and criminal justice system encounters.
- Potential effect modifiers considered include setting characteristics, such as whether the digital intervention includes school- or family-based settings, adolescent characteristics, intervention characteristics, and digital and social media exposure.
- No potential additional benefits or potential harms were thought to occur from these interventions.

Appendix B:

Search Strategy: Digital Interventions to Prevent Substance Use among Adolescents

Database	Strategy	Run Date	Records
Medline (OVID) 1946-	Ovid MEDLINE(R) ALL <1946 to August 01, 2023> 1 (teen* or youth* or adolescen* or juvenile* or (young adj2 (adult* or person* or individual* or people* or population* or man or men or wom#n)) or college* or ((secondary or high*) adj2 (school* or education))) .ti,ab. or adolescent/ or young adult/ 3117285 2 (Alcohol or Alcoholic or Alcoholism or Amphetamine or Amphetamines or Cocaine or Marijuana or Marihuana or Cannabis or Hashish or Opioid* or Narcotic* or Heroin or smoking or smoker* or tobacco or e-cigarette* or hookah or vaping or cigarette*) .ti,ab. or exp alcohol abuse/ or exp alcoholism/ or exp amphetamine/ or exp cocaine/ or exp Cannabis/ or exp cocaine/ or exp tobacco/ or exp tobacco smoking/ or exp "tobacco use"/ 928054 3 ((drug or substance) adj2 (abuse or misuse or addiction or overdos* or prevention)).mp. 108232 4 2 or 3 992156 5 Wireless Technology/ or Mobile Applications/ or Therapy, Computer Assisted/ or Internet/ or Video Games/ or (mobile application* or mobile app* or "portable electronic apps" or "portable electronic applications" or "portable software application" or mhealth or ehealth or "smartphone" or mobile tech* or mobile device* or telehealth or teletherapy or computer assisted therapy or internet or online or web-based or video game* or computer game*) .ti,ab. 402563 6 intervention* .ti,ab. 1323745 7 5 and 6 59682	8/2/23	1297

8	randomized controlled trial.pt. 597501		
9	controlled clinical trial.pt. 95397		
10	(randomized or randomised or randomization or randomisation or placebo or randomly or trial or groups or "clinical trials" or "evaluation study" or "intervention study" or "intervention studies" or "case-control" or cohort or longitudinal or longitudinally or prospective or prospectively or retrospective or "follow up" or "comparative study" or "meta-analysis" or "meta-analyses").ti,ab. 6294480		
11	drug therapy.sh. 31162		
12	clinical trial.pt. 538524		
13	"evaluation studies".pt. 26		
14	Evaluation Studies as Topic/ 122473		
15	Case-Control Studies/ 329018		
16	Cohort Studies/ 331031		
17	Longitudinal Studies/ 166211		
18	Retrospective Studies/ 1135027		
19	comparative study.pt. 1912920		
20	or/8-19 8311405		
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	republic* or el salvador* or salvadoran* or guinea* or equatorial guinea* or eritrea* or eswatini* or swaziland* or swazi* or swati* or ethiopia* or fiji* or gabon* or gabonese* or gabonaise* or gambia* or georgia or georgian or Georgians or ghana* or grenada* or grenadian* or guatemala* or haiti* or hispaniola* or hondura* or india* or indonesia* or iran* or iraq* or jamaica* or jordan* or kazakh* or kenya* or karabati* or kosovo* or kosova* or kyrgyz* or kirgiz* or kirghiz* or laos or lao or laotian* or lebanon* or lebanese* or lesotho* or lesothan* or lesothonian* or basutoland* or mosotho* or basotho* or liberia* or libya* or jamahiriya* or macedonia* or madagasca* or malagasy* or malawi* or nyasaland* or malaysia* or malay* federation or maldives* or maldivian* or indian ocean or mali or malian* or "mali's" or micronesia* or marshallese* or kiribati* or marshall island* or tuvalu* or mauritania* or mauritan* or mauritius* or mexico* or mexican* or moldova* or moldovia* or mongol* or montenegr* or morocco* or moroccan* or ifni or mozambique* or mozambican* or myanmar* or burma* or burmese or namibia* or nepal* or nicaragua* or niger* or pakistan* or palestin* or gaza* or west bank* or paraguay* or peru or peruvian* or "peru's" or philippine* or philipine* or phillipine* or phillippine* or filipino* or filipina* or russia* or ussr* or soviet* or rwanda* or rwandese or ruanda* or ruandese or samoa* or navigator island* or pacific island* or polynesia* or "sao tome and principe*" or sao tomean* or santomean* or senegal* or serbia* or sierra leone* or melanesia* or solomon island* or norfolk island* or somali* or sri lanka* or ceylon* or saint lucia* or st lucia* or saint vincent* or st vincent* or vincentian* or grenadine* or sudan* or surinam* or syria* or tajik* or tadjik* or tadzhik* or tanzania* or tanganyika* or thai* or timor leste* or east timor* or timorese* or togo or togoles* or "togo's" or tonga* or tunisia* or turkmen* or uganda* or ukrain* or uzbek* or vanuatu* or new hebrides* or vietnam* or viet nam* or yemen* or zambia* or zimbabwe* or rhodesia* or arab* countr* or middle east* or global		
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	south or sahara* or subsahara* or magreb* or maghrib* or west indies* or caribbean* or central america* or latin america* or south america* or central asia* or north asia* or northern asia* or southeastern asia* or south eastern asia* or southeast asia* or south east asia* or west asia* or western asia* or east europe* or eastern europe* or developing countr* or developing nation* or developing population* or developing world or less developed countr* or less developed nation* or less developed world or lesser developed countr* or lesser developed nation* or lesser developed world or under developed countr* or under developed nation* or under developed world or underdeveloped countr* or underdeveloped nation* or underdeveloped world or middle income countr* or middle income nation* or middle income population* or low income countr* or low income nation* or low income population* or lower income countr* or lower income nation* or lower income population* or underserved countr* or underserved nation* or underserved population* or under served population* or under served nation* or under served population* or deprived countr* or deprived population* or high burden countr* or high burden nation* or countdown countr* or countdown nation* or poor countr* or poor nation* or poor population* or poor world or poorer countr* or poorer nation* or poorer population* or poorer world or developing econom* or less developed econom* or underdeveloped econom* or under developed econom* or middle income econom* or low income econom* or lower income econom* or low gdp or low gnp or low gross domestic or low gross national or lower gdp or lower gnp or lower gross domestic or lower gross national or lami countr* or transitional countr* or emerging econom* or emerging nation*).ti,ab,hw,kf. 2110345 22 1 and 4 and 7 2449 23 20 and 22 1451 24 23 not 21 1315		
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Appendix C:

Included Studies: Digital Interventions to Prevent Substance Use among Adolescents

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Appendix D:

Summary Evidence Table

Substance Use: Digital Interventions to Prevent Substance Use among Adolescents

Abbreviations Used in This Document:

- Measurement terms
 - CI: confidence interval
 - OR: Odds Ratio
 - IRR: Incidence rate ratio
 - RRR: Relative risk reduction or relative risk ratio
- Study design and Risk of Bias
 - iRCT: individual randomized controlled trial
 - gRCT: group randomized controlled trial
- Other terms:
 - NA: not applicable
 - NR: not reported
 - NS: not significant
 - SES: socioeconomic status
 - Int: Intervention
 - Cont: Control
- Other terms (cont):
 - pct pts: percentage points
 - yrs: years
 - m: months
 - hrs: hours
 - mins: minutes

Notes:

- Suitability of design includes three categories: greatest, moderate, or least suitable design. [Read more](#)
- Race/ethnicity of the study population: The Community Guide only summarizes race/ethnicity for studies conducted in the United States.
- For population characteristics, if a study reported intervention and control separately, intervention population characteristics were reported

Study	Population Characteristics	Intervention Characteristics	Results
Author Year: Ariza 2013 Location: Spain Years for Study: 2005-2006 Study Design: gRCT CG Suitability: Greatest Quality of Execution (# of limitations): Fair (2 of limitations)	Setting: School Urbanicity: NR Eligibility: 9th graders at schools that previously applied for the "Decideix" drug prevention program; additional criteria based on school type, size, and community socioeconomic status. Recruitment: 86 out of 224 secondary schools in Barcelona during the 2005-2006 school year. Sample size: Baseline 4846 students (86 schools) Int 2803 (39 schools) Control 2043 (47 schools) <i>15-months post-intervention</i> Follow-up: 65.8% (3191/4846) Loss to f/u: 34.2% Study Population: Adolescents (Int) Age: 14.4 years (range: 14 – 15) School level: High school Grade level(s): NR Sex: 51.4% female, 48.6% male Race/ethnicity: N/A SES (individual): Weekly pocket money-0 euros 41.70%	Intervention/program name: xkpts.com (translated as "why joints?") Substance(s) focused: Cannabis specific Format: Internet/web-based, DVD Brief description of intervention and content: Teachers led sessions in classroom with a total of 16 student activities (including DVD, discussion, role playing, etc.) Family involvement: 2 sessions at home: 1 with parents (guide for parent-child discussions and form to complete) and 1 individual (website + DVD). Online resources on program's website. Implementer(s) School involved in intervention or School not involved: Yes, in classroom Intervention duration: 2 months April - May 2006 Intervention intensity: Number of sessions/modules: 4 in classroom, 2 at home Time per session: NR Total hours: 6-10 hrs Booster: No	Outcome: Prevalence of Cannabis use Measure: Self report cumulative incidence rate (CIR) of last month use (30 day) Baseline: Int (n=NR): NR Comp (n=NR): NR Follow-up (in months): 15m Int (n=1756): 8.3% Comp (n=1239): 11.7% Absolute change: -3.4 pct pts Relative change: -29.1% Narrative results: OR= 1.408 (1.035, 1.914), p = 0.003 Favorable (Yes/No/No effect): Yes Statistical significance: Yes

	< 10 euros 40.20% 10-30 euros 15.50% < 30 euros 2.00% <i>SES level by FECI (Family economic capacity index), indicator of wealth</i> <i>Student's Neighborhood of Residence:</i> Low 23.3%, Middle 50.5%, High 12.8% <i>Other Academic performance:</i> Low 14.6%, Middle 58.5% High 25.9% Community characteristics: <i>School type:</i> Private/subsidized 73.4%, Public 26.6% <i>SES level by FECI</i> <i>School's Neighborhood:</i> Low 37.5%, Middle 29.3%, High 33.1% Study population: Parents and Caregivers <i>Family home situation:</i> Two-parent 77.5% Single-parent 20.8% Other 1.7%	Comparison group: control group, no intervention	
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Author Year: Arnaud 2016 Location: Czech Republic, Germany, Sweden, Belgium Years for Study: June 2012 – June 2013 Study Design: iRCT CG Suitability: Greatest Quality of Execution (# of limitations): Fair (2 of limitations)	Setting: Online Urbanicity: NR Eligibility: adolescents from Czech Republic, Germany, Sweden, and Belgium: had online access; informed consent; and a positive screening for at-risk substance use Recruitment: 2673 visitors to the WISEteens open-access website landing page; 1449 (54.2%) eligible and randomized Sample size: Baseline 1449 Int 715 Control 734 <i>3-months post-baseline</i> Follow-up 14.5% (211/1449) Loss to f/u 85.5% Study Population: Adolescents (Int) Age: 16.8 years (range: 16-18) School level: High school (95% in school) Grade level(s): NR Sex: 47.8% female, 52.2% male Race/ethnicity: race NR; Ethnicity: 63.3% Czech Republic; 10.9% Germany; 16.2% Sweden; 9.8% Belgium Study population: Parents and Caregivers Father's highest education level High 28.5%	Intervention/program name: WISEteens Substance(s) focused: Alcohol specific Format: Internet/web-based Brief description of intervention and content: Fully automated program to screen for substance use risk, delivered interactive, tailored brief motivational interviewing content to reduce substance use. Content focused on alcohol use prevention, but included content related to decision making on substance use in general. Components included feedback for: - Individual drinking patterns - Normative feedback to descriptive drinking norms - Blood alcohol concentration (BAC) - To encourage change readiness and exploration of personal strengths, resources, and volitional strategies for goal attainment, - Decisional balance for selection of personal costs and benefits of current substance use - Identification and selection of personal high-risk situations for substance use and provision of behavioral strategies Implementer(s) School involved in intervention or School not involved: Not involved	Outcome: Frequency of Alcohol Use Measure: Youth self-reported alcohol use AUDIT-C Index (composite score points) Baseline Int (n=715): 5.24 Comp (n=734): 5.25 Follow-up (in months): 3 months post baseline (post 1 session intervention) Int (n=715): 4.72 Comp (n=734): 4.82 Absolute change: Adjusted mean between group difference -0.13 scale points (95%CI -0.02, -0.25) Relative change: NA Narrative results: Cohens d=0.04; Intervention effect for intention-to-treat analysis was statistically significant (p=0.022) Favorable (Yes/No/No effect): Yes Statistical significance: Yes Outcome: Frequency of Alcohol Use-Subset Analysis for males Measure: Male self-reported alcohol use AUDIT-C Index (composite score points) Baseline N=86 total Int (n=NR): 5.45 Comp (n=NR): 6.00 Follow-up (in months): 3 months post baseline (post 1 session intervention) Int (n=NR): 4.44 Comp (n=NR): 6.21 Absolute change: Adjusted mean between group difference -1.22 scale points (95%CI NR)
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	Medium 61.4% Low 10.1%	Intervention duration: 1 day Intervention intensity: Number of sessions/modules: 1 Time per session: ~15 mins Total hours: 5-30 mins Booster: No Comparison group: Control group, assessments only	Relative change: NA Narrative results: p=0.001 Favorable (Yes/No/No effect): Subset of males: Yes Statistical significance: Subset of males Yes Outcome: Frequency of Alcohol Use-Binge drinking Measure: Youth self-reported frequency of binge drinking score AUDIT-C Baseline: Int (n=715): 1.54 Comp (n=734): 1.58 Follow-up (in months): 3 months post baseline (post 1 session intervention) Int (n=715): 1.39 Comp (n=734): 1.42 Absolute change: -0.01 scale points Relative change: NA Narrative results Adjusted mean between group difference -0.03 (95%CI -0.01 to -0.08); p=0.13 Cohen D=0.01 Favorable (Yes/No/No effect): No effect Statistical significance: No Outcome: Prevalence of Illicit or Other Substances as a Combined Measure Measure: Youth self-reported prevalence of illegal drug use (past 30 days) Baseline: Int (n=715): 49.8% Comp (n=734): 49.6% Follow-up (in months): 3 months post baseline (post 1 session intervention)
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			Int (n=715): 41.7% Comp (n=734): 39.8% Absolute change: +1.7 percentage points Relative change: +4.35% Narrative results: OR=1.22 (95%CI 0.87 to 1.73); p=0.254 Favorable (Yes/No/No effect): No Statistical significance: No Outcome: Prevalence of Illicit or Other Substances as a Combined Measure (Polydrug use) Measure: Youth self-reported prevalence of use of alcohol and illegal drugs (past 30 days) Baseline: Int (n=715): 47.8% Comp (n=734): 46.3% Follow-up (in months): 3 months post baseline (post 1 session intervention) Int (n=715): 41.1% Comp (n=734): 39.8% Absolute change: -0.2 percentage points Relative change: -0.50% Narrative results: OR=1.03 (95%CI 0.73 to 1.44); p=0.888 Favorable (Yes/No/No effect): No effect Statistical significance: No
Author Year: Bannink 2014 Location: The Netherlands	Setting: School, Online Urbanicity: Urban Eligibility: : Third- and fourth-year students who consented to participate and had	Intervention/program name: E-health4Uth Substance(s) focused: General prevention Format: Computer, Internet/web-based	Intervention arm: E-health4Uth Outcome: Prevalence of Alcohol Use - Binge drinking Measure: Student self-reported zero times consuming 5 or more drinks on 1 occasion in the past 4 weeks

Years for Study: September 2012 to May 2013 Study Design: gRCT CG Suitability: Greatest Quality of Execution (# of limitations): Fair (3 of limitations)	parental consent at secondary schools invited by youth health care organizations Recruitment: 14 secondary schools invited; 12 agreed totaling 11 classes of third years (2 schools) and 75 classes of fourth year (10 schools). School classes (clusters) randomly assigned; 1702 (85.57%) eligible. Sample size: Baseline 1702 Int E-health4Uth 533 (84.7%) E-health4Uth+ 554 (84.2%) Control: 615 (87.6%) <i>4-months post-baseline</i> Follow-up 73.8% (1256/1702) Int 75.6% (822/1087) Ehealth 73.5% (392/533) Ehealth+ 77.6% (430/554) Control 70.6% (434/615) Loss to f/u 26.2% Study Population: Adolescents (Int) Age: Ehealth= 15.8 years (range: 15-16) Ehealth+= 16.0 years (range: 15-16) School level: High school Grade level(s): 3rd/4th year Sex: Ehealth = 43.1% female, 56.9% male Ehealth+ = 44.0% female, 56.0% male	Brief description of intervention and content: <i>Ehealth4Uth only</i> Students surveyed on health and well-being topics: alcohol, drugs, smoking, sex, bullying, mental health, suicidal thoughts/attempts, unwanted sexual experiences. Personalized online messages for feedback: • Red: Unhealthy behaviors • Orange: Slightly unhealthy behaviors • Green: Healthy behaviors (Dutch standards) • Blue: Well-being topics Links to relevant websites provided. <i>E-health4Uth+ consultation</i> Same as <i>Ehealth4Uth</i>, but those at risk of mental health problems invited for a consultation with the school nurse Implementer(s) School involved in intervention or School not involved: Yes, in classroom Intervention duration: 1 day Intervention intensity: Number of sessions/modules: 1 Time per session: 45 mins Total hours: 45 mins Booster: Yes	Baseline Int (n=392): 65.1% Comp (n=434): 67.6% Follow-up (in months): 4 months Int (n=392): 59.0% Comp (n=434): 63.7% Absolute change: -2.2 percentage points Relative change: -3.8% Narrative results: Adjusted OR 0.90 (0.61, 1.34) Favorable (Yes/No/No effect): No Statistical significance: No Outcome: Prevalence of Tobacco use Measure: Student self-reported zero times consuming tobacco in the past 4 weeks Baseline: Int (n=NR): 83.9% Comp (n=NR): 81.5% Follow-up (in months): 4 months Int (n=392): 82.8% Comp (n=434): 80.8% Absolute change: -0.4 percentage points Relative change: -0.5% Narrative results: Adjusted OR = 0.97 (0.61, 1.56) Favorable (Yes/No/No effect): No Effect Statistical significance: No Outcome: Prevalence of Illicit or Other Substances as a Combined Measure Measure: Student self-reported zero times consuming drugs in the past 4 weeks Baseline:
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	Race/ethnicity: race NR; Ethnicity: Dutch Ehealth = 79.3% Ehealth+ = 74.4% SES: NR Study population: Parents and Caregivers: NR	Comparison group: Control group received no intervention but completed same questionnaire assessing health-risk behaviors and well-being as intervention groups, except for the questions on unpleasant sexual experience, suicidal thoughts, and suicidal attempts.	Int (n=392): 95.4% Comp (n=434): 91.9% Follow-up (in months): 4 months Int (n=392): 94.1% Comp (n=434): 91.7% Absolute change: +1.1 percentage points Relative change: +1.1% Narrative results: Adjusted OR =1.06 (0.43, 2.61) Favorable (Yes/No/No effect): No effect Statistical significance: No Outcome: Sexual Behaviors - Condom Use Measure: Subset of sexually active youth self-reporting “always” condom use during intercourse Baseline: Int (n=NR): 53.1% Comp (n=NR): 51.0% Follow-up (in months): 4 months Int (n=NR): 52.1% Comp (n=NR): 40.6% Absolute change: +9.4 percentage points Relative change: +23.3% Narrative results: Adjusted OR= 2.09 (1.04, 4.22) Favorable (Yes/No/No effect): Yes Statistical significance: Yes Outcome: Mental Health - Well-being Measure: Student self-reported scale score on Strengths and Difficulties Questionnaire Baseline: Int (n=NR): 10.06 Comp (n=NR): 9.91
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			Follow-up (in months): 4 months Int (n=NR): 8.92 Comp (n=NR): 9.07 Absolute change: -0.3 scale points Relative change: NA Narrative results: Beta coefficient -0.24 (-0.78, 0.29), p=0.37 Favorable (Yes/No/No effect): No effect Statistical significance: No Outcome: Tobacco Initiation Measure: % reporting starting to smoke (lifetime) Baseline: Int (n=NR): 16.1% Comp (n=NR): 18.5% Follow-up (in months): 4 months Int (n=392): 17.2% Comp (n=434): 19.2% Absolute change: +0.4 percentage points Relative change: +2.94% Narrative results: OR = 0.97 (0.61, 1.56) Favorable (Yes/No/No effect): No effect Statistical significance: No Intervention arm: E-health4Uth + Consultation Outcome: Prevalence of Alcohol Use - Binge drinking Measure: Student self-reported zero times consuming 5 or more drinks on 1 occasion in the past 4 weeks Baseline: Int (n=430): 63.4%
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			Comp (n=434): 67.6% Follow-up (in months): 4 months Int (n=430): 65.9% Comp (n=434): 63.7% Absolute change: +6.4 percentage points Relative change: +10.3% Narrative results: NR Favorable (Yes/No/No effect): Yes Statistical significance: NR Outcome: Prevalence of Tobacco Use Measure: Student self-reported zero times consuming tobacco in the past 4 weeks Baseline: Int (n=430): 82.1% Comp (n=434): 81.5% Follow-up (in months): 4 months Int (n=430): 82.6% Comp (n=434): 80.8% Absolute change: +1.2 percentage points Relative change: +1.5% Narrative results: NR Favorable (Yes/No/No effect): No effect Statistical significance: NR Outcome: Prevalence of Illicit or Other Substances as a Combined Measure Measure: Student self-reported zero times consuming drugs in the past 4 weeks Baseline: Int (n=430): 93.7% Comp (n=434): 91.9%
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			Follow-up (in months): 4 months Int (n=430): 89.6% Comp (n=434): 91.7% Absolute change: +3.9 percentage points Relative change: +4.2% Narrative results: NR Favorable (Yes/No/No effect): No Statistical significance: NR Outcome: Sexual behaviors - Condom use Measure: Subset of sexually active youth self-reporting “always” condom use during intercourse Baseline: Int (n=NR): 52.3% Comp (n=NR): 51.0% Follow-up (in months): 4 months Int (n=NR): 43.7% Comp (n=NR): 40.6% Absolute change: 1.8 percentage points Relative change: 5.0% Narrative results: NR Favorable (Yes/No/No effect): Yes Statistical significance: NR Outcome: Mental Health - Well-being Measure: Student self-reported scale score on Strengths and Difficulties Questionnaire Baseline: Int (n=NR): 9.75 Comp (n=NR): 9.91 Follow-up (in months): 4 months Int (n=NR): 8.42
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			Comp (n=NR): 9.07 Absolute change: -0.49 scale points Relative change: NA Narrative results: Beta coefficient -0.60 (-1.17, -0.04), p=0.04 Favorable (Yes/No/No effect): Yes Statistical significance: Yes Outcome: Tobacco Initiation Measure: % reporting starting to smoke (lifetime) Baseline: Int (n=NR): 17.9% Comp (n=NR): 18.5% Follow-up (in months): 4 months Int (n=430): 17.4% Comp (n=434): 19.2% Absolute change: -1.2 percentage points Relative change: -6.34% Narrative results: OR = 0.95 (0.58, 1.57) Favorable (Yes/No/No effect): Yes Statistical significance: No
Author Year: Buller 2008A Location: Australia Years for Study: 2001-2002 Study Design: gRCT CG Suitability: Greatest	Setting: School Urbanicity: NR Eligibility: 7th – 9th graders at Australian secondary schools in Victoria and South Australia providing consent Recruitment: Teachers in schools were invited to participate directly from	Intervention/program name: Consider This Substance(s) focused: Tobacco specific Format: Computer, Internet/web-based Brief description of intervention and content: Internet-based tobacco prevention intervention conducted through school computer labs and run by classroom teachers.	Outcome: Prevalence of Tobacco Use Measure: Student self-reported prevalence of use of tobacco (any) in the past 30 days Baseline: Students with pre-test and post-test data Int (n=754): 17.5% Comp (n=756): 16.4% Follow-up: Not reported (end of school year) Int (n=754): 16.3% Comp (n=756): 19.2% Absolute change: -4.0 percentage points

Quality of Execution (# of limitations): Fair (3 of limitations)	secondary schools, which were pair-matched then randomized Sample size: Baseline 2077 (25 schools) Int NR Control NR <i>End of school year-post-baseline</i> Follow-up 73.1% (1518 /2077) Int 754 students (13 schools) Control 756 students (12 schools) Loss to f/u 26.9% <i>Note: 8 with incomplete data removed</i> Study Population: Adolescents Age: range: 10 – 16 (10-11=1.1%; 12= 21.7%; 13= 33.3%; 14= 30.9%; 15-16= 11.0%) School level: Middle school Grade level(s): 7th – 9th (7th 34.9%, 8th 33.8%, 9th 31.2%) Sex: 51.5% female, 48.5% male Race/ethnicity: race NR; Ethnicity Australian/European 73.4% Non-European 17.0% Mixed 7.4% Study population: Parents and Caregivers: N/A Community characteristics: N/A	73 online activities organized into 6 modules: Introduction, Media Literacy, Relationships, Mind and Body, Decision Making, and Resistance Strategies Implementer(s) School involved in intervention or School not involved? Yes, in classroom Intervention duration: 6 class sessions Intervention intensity: 6 days Number of sessions/modules: 6 Time per session: 45-60 mins Total hours: 6 hours Booster: No Comparison group: Usual care, classrooms received standard health education	Relative change: -20.4% Narrative results: p-value not reported Favorable (Yes/No/No effect): Yes Statistical significance: NR Outcome: Tobacco Use Initiation Measure: Percentage of nonsmoking students at baseline self-reporting smoking (any) at follow-up Baseline: Students with pretest and posttest data Int (n=NR): 0% by definition Comp (n=NR): 0% by definition Follow-up: Not reported (end of school year) Int (n=NR): 5.6% Comp (n=NR): 8.1% Absolute change: -2.5 percentage points Relative change: -30.9% Narrative results: NR Favorable (Yes/No/No effect): Yes Statistical significance: NR
Author Year: Buller 2008B	Setting: School Urbanicity: NR Recruitment: school districts, teachers in health, science, consumer education)	See Intervention Characteristics from Buller 2008A	Outcome: Frequency of Tobacco Use Measure: Number of days in the past month smoking at least a whole cigarette (30 days)

Location: Colorado and New Mexico, USA Years for Study: 2001-2002 Study Design: gRCT CG Suitability: Greatest Quality of Execution (# of limitations): Fair (3 of limitations)	classes were recruited. Schools pair-matched then randomized (65.5%) Eligibility: middle school students provided active consent Sample size: Baseline 1234 Int NR / Control NR <i>End of school year-post-baseline</i> Follow-up 82.7% (1020/1234) Int 640 (10 schools) Control 364 (11 schools) Loss to f/u 18.6% <i>Note: 16 with incomplete data removed</i> Study Population: Adolescents Age: range: 10 – 14 (10-11= 26.7%; 12= 44.5%; 13= 21.8%; 14=3.8%) School level: Middle school Grade level(s): 6th – 8th (6th 40.7%; 7th 52.6%; 8th 6.6%) Sex: 51.2% female, 48.8% male Race/ethnicity: Black or African American 3.4% Asia 3.9% White 55.8% American Indian 6% Native Hawaiian 0.6% Other race 7.2% Ethnicity Hispanic or Latino 23.9%		Baseline: Students with pre-test and post-test data: 6.4% had smoked in the last 30 days Int (n=640): NR Comp (n=364): NR Follow-up: Not reported (end of school year) Int (n=640): NR Comp (n=364): NR Absolute change: Not reported Relative change: Not reported Narrative results: No significant effect (pre/post change estimate = 0.0072, p=0.776) for smoking any portion of a cigarette or smoking a whole cigarette (estimate = 0.0247, p=0.122). Favorable (Yes/No/No effect): No effect Statistical significance: No
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	Study population: Parents and Caregivers: N/A Community characteristics: N/A		
Author Year: Byrnes 2019 Location: USA (National sample) Years for Study: November 2014 - November 2015 Study Design: iRCT CG Suitability: Greatest Quality of Execution (# of limitations): Fair (2 of limitations)	Setting: Online, Home/Family Urbanicity: NR Eligibility: parent with a teen aged 16-17; English speaking; a device (tablet or computer); eligibility verified via phone Recruitment: 1,531 adult-teen dyads identified nationally from two online panel vendors, 559 eligible and 411 (73.5%) enrolled. Participants were randomly assigned at the family level Sample size: Baseline 411 Int 206 Control 205 <i>12-month post-baseline</i> Follow-up 75.7% (311/411 teens) 86.1% (356/411 parents) Int 71.4% (147/206 teens) 80.1% (165/411 parents) Cont 80.0% (164/205 teens) 92.2% (189/205 parents) Loss to f/u 24.3% teens, 13.9% parents Study Population: Adolescents Age: 16.4 years (range: 16 – 17) School level: High school Grade level(s): NR	Intervention/program name: Smart Choices 4 Teens Substance(s) focused: Alcohol specific Format: Computer, Laptop, iPad/Tablet, Internet/web-based Brief description of intervention and content: an interactive, online family prevention program with three sequential components (general parent-teen communication, teen alcohol use, and teen romantic relationships). Adapted from two evidence-based prevention programs: Family Matters and Parent Handbook. Alcohol Prevention component aimed to prevent or reduce teen alcohol use. Introduction module: overview and statistics about teen alcohol use, information about peer pressure, and consequences of drinking. Other modules: several activities and videos focusing on social host laws in each state, physical and social consequences of drinking, signs of alcohol poisoning, a BAC calculator activity, myths about sobering up, parental influences important to address teen alcohol	Intention to Treat Analyses at 12 months All models controlled for baseline values of dependent variables, teen gender, teen age, and teen ethnicity. Outcome: Prevalence of Alcohol Use Measure: Youth self-reported alcohol use in the past 30 days Baseline: Int (n=206): 10.3% Comp (n=205): 11.1% Follow-up (in months): 12 months post baseline Int (n=147): 6.9% Comp (n=164): 16.0% Absolute change: -8.3 percentage points Relative change: -53.5% Narrative results: Adjusted OR=0.37, p<0.01 Cohen's D: alcohol use d = -0.55 Favorable (Yes/No/No effect): Yes Statistical significance: Yes Outcome: Frequency of Alcohol Binge or Heavy Drinking Measure: Youth self-reported number of times binge drinking in past 30 days on a scale Baseline: Int (n=206): mean 0.08 scale points (SD 0.41) Comp (n=205): mean 0.06 scale points (SD 0.39)

	Sex: 55.3% female, 44.7% male Race/ethnicity: - Black or African American 11.7% - Asian 1.9% - White 72.5% - American Indian 1.0% - Multiracial 8.3% - Other race 2.7% - NR 1.9% - Ethnicity Hispanic or Latino 9.5% Study population: Parents and Caregivers Age: 43.7 years Sex: 84.7% female, 15.3% male Household size: mean 4.5 (range: 2-12) All other demographic NR Community characteristics: N/A	use, refusal skills, and indicators of problem drinking. Implementer(s) School involved in intervention or School not involved: not involved Intervention duration: 1 day Intervention intensity: Number of sessions/modules: 3 Time per session: average 5.94 min for alcohol component (16.34 minutes for parents, 15.53 minutes for teens) Total hours: 32 mins Booster: No Comparison group: Control group received no intervention and also had access to an 800 number throughout the duration of the project for contact with the research team.	Follow-up (in months): 12 months post baseline Int (n=147): NR Comp (n=164): NR Absolute change: NR Relative change: NR Narrative results: There was a decrease in number of times binge drinking reported by intervention participants compared to the control group $t = -1.86$; $p < 0.10$, Cohen's $d = -.22$ Favorable (Yes/No/No effect): Yes Statistical significance: No Outcome: Frequency of Alcohol Binge or Heavy Drinking (Drunkenness) Measure: Youth self-reported number of times drunk in past 30 days on a scale Baseline: Int (n=206): mean 0.08 scale points (SD 0.34) Comp (n=205): mean 0.07 scale points (SD 0.35) Follow-up (in months): 12 months post baseline Int (n=147): NR Comp (n=164): NR Absolute change: NR Relative change: NR Narrative results: There was a decrease in number of times drunk reported by intervention participants compared to the control $t = -1.37$; p-value reported as not significant, Cohen's $d = -.16$ Favorable (Yes/No/No effect): Yes Statistical significance: No Outcome: Frequency of Alcohol Use
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			Measure: Youth self-reported frequency of alcohol use in past 30 days on a scale Baseline: Int (n=206): mean 0.25 scale points (SD 0.89) Comp (n=205): mean 0.22 scale points (SD 0.73) Follow-up (in months): 12 months post baseline Int (n=147): NR Comp (n=164): NR Absolute change: NR Relative change: NR Narrative results: t-value =-0.11; p-value reported as not significant, b=-0.03, SE=0.25, Cohen's d = -.01 Favorable (Yes/No/No effect): Yes Statistical significance: No Outcome: Frequency of Alcohol Use (Quantity) Measure: Youth self-reported quantity of alcohol use in past 30 days on a scale on a scale Baseline: Int (n=206): mean 0.27 scale points (SD 0.93) Comp (n=205): mean 0.27 scale points (SD 1.05) Follow-up (in months): 12 months post baseline Int (n=147): NR Comp (n=164): NR Absolute change: NR Relative change: NR Narrative results: t-value =-0.47; p-value reported as not significant, b=-0.05, SE=0.10, Cohen's d = -0.06 Favorable (Yes/No/No effect): No effect Statistical significance: No
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Author Year: Champion 2018 Location: Australia Years for Study: 2014 - 2016 Study Design: gRCT CG Suitability: Greatest Quality of Execution (# of limitations): Fair (3 of limitations)	Setting: School, Online Urbanicity: NR Eligibility: independent schools in Sydney; Year 10 students (aged 15-16 years) speaking English with parental consent Recruitment: School principals were sent a letter outlining study; 90 schools in Sydney approached, only 12 committed (1277 students). Sample size: Baseline 1126 Int 636 (5 schools) Control 490 (6 schools) <i>24-month post-baseline</i> Follow-up 61.5% (692/1126) Int 62.9% (400/636) Control 59.6% (292/490) Loss to f/u 38.5% Study Population: Adolescents Age: 14.9 years (range: 15 – 16) School level: High school Grade level(s): Year 10 Sex: 43.0% female, 57.0% male Race/ethnicity: N/A Other Study population: Parents and Caregivers: N/A Community characteristics: N/A	Intervention/program name: Climate Schools: Ecstasy and Emerging Drugs Substance(s) focused: Ecstasy and Emerging Drugs Format: Computer, Internet/web-based Brief description of intervention and content: Implemented during the health education classes. Teachers instructed to fully complete all lessons in order. Each lesson includes a core online cartoon component (20 mins) completed individually by students and 20 mins of optional activities (worksheets, discussions, and role plays). Intervention Goals: (1) Provide evidence-based information on ecstasy and NPS. (2) Correct overestimations of peer use of these substances. (3) Teach refusal skills and address misconceptions about drug use. Implementer(s) School involved in intervention or School not involved: Yes in classroom Intervention duration: 1 month Intervention intensity: weekly Number of sessions/modules: 4	Outcome: Ecstasy Initiation Measure: % of students reporting having ever used ecstasy Baseline: Int (n=400): 2.5% Comp (n=292): 1.2% Follow-up: 24 months Int (n=400): 7.4% Comp (n=292): 2.8% Absolute change: +3.3 percentage points Relative change: +29.8% Narrative results: OR=1.08 (CI: 0.19 to 6.15) Favorable (Yes/No/No effect): No effect Statistical significance: NS Outcome: Initiation of New Psychoactive Substances Measure: % of students reporting having ever used new psychoactive substances Baseline: Int (n=400): 3.0% Comp (n=292): 3.0% Follow-up: 24 months Int (n=400): 4.6% Comp (n=292): 2.4% Absolute change: +2.0 pct pts. Relative change: +80.1% Narrative results: OR: 0.57, (CI: 0.14 to 2.30) No significant differences between the two groups. Favorable (Yes/No/No effect): No effect Statistical significance: NS Outcome: Initiation of Synthetic Stimulants
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		Time per session: 40 mins Total hours: 2h 40 mins Booster: No Comparison group: Usual care; regular health education classes for year 10 students in 2014. Topics covered: short- and long-term effects of substances, refusal skills, safety strategies. Lesson duration: 1 to 2.5 lessons on ecstasy and NPS, average lesson was 58 minutes. Information delivery methods: 3 schools used computers and the Internet, 3 schools invited guest speakers (police, drug and alcohol professionals). Offered complimentary access to intervention at end of the study.	Measure: % of students reporting having ever used synthetic stimulants Baseline: Int (n=400): 0.6% Comp (n=292): 0 Follow-up: 24 months Int (n=400): 3.0% Comp (n=292): 1.0% Absolute change: +1.4 percentage points Relative change: NA Narrative results: NR Favorable (Yes/No/No effect): No effect Statistical significance: NR Outcome: Initiation of Synthetic Cannabis Measure: % of students reporting having ever used synthetic cannabis Baseline: Int (n=400): 2.4% Comp (n=292): 2.5% Follow-up: 24 months Int (n=400): 4.3% Comp (n=292): 1.4% Absolute change: +3.0 percentage points Relative change: +225.6% Narrative results: OR=0.17 (CI: 0.03 to 0.97) p=0.05. Favorable (Yes/No/No effect): No Statistical significance: Yes
Author Year: Champion 2023 Location: Australia	Setting: School, Online Urbanicity: Urban, suburban, rural	Intervention/program name: Health4Life intervention Substance(s) focused: General Prevention	Outcome: Prevalence of Alcohol Use Measure: Student self-reported use of alcohol (at least one full drink) in the past 6 months

Years for Study: 2019-2021 Study Design: gRCT CG Suitability: Greatest Quality of Execution (# of limitations): Fair (2 of limitations)	Eligibility: All students aged 11-13 years, fluent in English. Some schools also included year 8 students (aged 13-14 years). Schools with fewer than 30 year 7 students excluded. Recruitment: Schools identified via publicly available database: 519 independent, public (government-funded), or Catholic schools across three Australian states approached, 85 schools (9280 students) randomly allocated (1:1), only 71 enrolled in study (37 from New South Wales, 16 Western Australia, 18 Queensland). Sample size: Baseline 6640 students (71 schools) Int 3610 students (36 schools) Control 3030 students (35 schools) <i>24-month post-baseline</i> Follow-up 75.5% (5015/6640) Int 73.4% (2648/3610) Control 78.1% (2367/3030) Loss to f/u 24.5% Study Population: Adolescents Age: 12.7 years (range: 11-14) School level: Middle school Grade level(s): Year 7 Sex: 48.9% female, 50.6% male, 0.5% non-binary or gender fluid Race/ethnicity: N/A Other	Format: Computer, Smartphone, Internet/web-based, Apps Brief description of intervention and content: <i>Universal School-Based Program + App</i> Web-based eHealth program with interactive cartoons about a group of teenagers to empower and improve health and well-being and reduce chronic disease risk by providing simultaneous education about the Big 6 risk factors for chronic disease: physical inactivity, poor diet and sleep, sedentary recreational screen time, and alcohol and tobacco use. App Features: - Tracks physical activity, screen time, diet, alcohol/tobacco abstinence, sleep & mood. - Visual progress over time. - Goal-setting tools. - Motivational quotes & rewards system (badges). Implementer(s) School involved in intervention or School not involved? Yes in classroom Intervention duration: 1.5 months Intervention intensity: weekly Number of sessions/modules: 6 Time per session: 20 mins Total hours: 2h	Baseline Int (n=3467): 3.2% Comp (n=2879): 2.5% Follow-up (in months): 24 months post baseline Int (n=2439): 16.7% Comp (n=2264): 15.1% Absolute change: +0.9 percentage points Relative change: -13.6% Narrative results: OR post=1.24 (95%CI 0.58, 2.64) Favorable (Yes/No/No effect): No Statistical significance: No Outcome: Prevalence of Tobacco Use Measure: Student self-reported smoking (at least one puff) in the past 6 months Baseline: Int (n=3453): 1.6% Comp (n=2853): 1.5% Follow-up (in months): 24 months post baseline Int (n=2424): 6.8% Comp (n=2258): 5.4% Absolute change: +1.3 percentage points Relative change: +18.1% Narrative results: OR=1.68 (95%CI 0.76,3.72) Favorable (Yes/No/No effect): No Statistical significance: No
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	Study population: Parents and Caregivers N/A Community characteristics: SES Lower: 15.1% Middle: 36.7% Higher: 48.2% <i>School type</i> Government 30.1% Independent 50.9% Catholic 19.0%	Booster: Yes Comparison group: Usual care, mandatory health education. Delivered approximately once per week by teachers to help students develop knowledge and skills to lead healthy, safe, and active lives.	
Author Year: Cremers 2015 Location: the Netherlands Years for Study: October 2011 - December 2013 Study Design: gRCT CG Suitability: Greatest Quality of Execution (# of limitations): Fair (3 of limitations)	Setting: School, Online, Home/Family Urbanicity: NR Eligibility: all grade 7 students, unless they or their parents refused to be involved Recruitment: 3500 primary schools in all regions of the Netherlands contacted, 175 agreed, 13 dropped out after randomization, 162 schools enrolled Sample size: Baseline 3213 (162 schools) Int 2210 (110 schools) No prompt 1003 (51 schools) Prompt 1207 (59 schools) Control 1003 (52 schools)	Intervention/program name: Fun without Smokes Substance(s) focused: Tobacco specific Format: Computer, Internet/web-based, Text Messaging Brief description of intervention and content: Interactive Website Features with dynamic content on tobacco prevention and engaging animated videos. Both intervention groups had ongoing access to "Fun without Smokes" website. Three customized feedback messages:	Outcome: Tobacco Use Initiation Measure: Number of children who smoked Lifetime ever use of tobacco (occasionally, monthly, weekly, or daily) Prompt Group Baseline: Int (n=1207): NR Comp (n=1003): NR Follow-up (in months): 25 months Int (n=1207): NR Comp (n=1003): NR Absolute change: NR Relative change: NR Narrative results: OR=0.53, (95% CI 0.12-2.47) No significant differences found between control vs

	25-months post-baseline Follow-up 46.2% (1483/3213) Int 44.7% (987/2210) No prompt 47.5% (476/1003) Prompt 42.3% (511/1207) Control 49.5% (496/1003) Loss to f/u 52.5% Study Population: Adolescents Age: 10.4 years (range: 10-11) School level: Middle school Grade level(s): 7 Sex: 50.6% female, 49.4% male Race/ethnicity: Race NR; ethnicity 88.27% Western, 11.73% Not Western Note: Western ethnic background: child + both parents born in the Netherlands, another European country, North America, Oceania, Indonesia (a former Dutch colony), or Japan. Followed Statistics Netherlands guidelines. Otherwise: considered to have a non-Western ethnic background Study population: Parents and Caregivers N/A Community characteristics: Community measure based on postal code based on neighborhood income, occupation, and education: High 42.14%	Attitudes toward smoking, perceived social influence, self-efficacy in refusing cigarettes. Computer-tailored feedback in PDF format sent to participants' emails and feedback accessible via the intervention website. <i>No-Prompt Group:</i> Received messages on attitude, social influence, and self-efficacy. No additional prompts to revisit the website. <i>Intervention with Prompt Group:</i> Six annual prompt messages via email/SMS to encourage website revisits. Prompts announced new smoking prevention topics on "Fun without Smokes" site (games, videos, information). Implementer(s) School involved in intervention or School not involved: No, only for assessments Intervention duration: 3 days Intervention intensity: Number of sessions/modules: 3 Time per session: NR Total hours: NR Booster: Yes Comparison group: Control group, no intervention; completed web-based	prompt group or control vs no-prompt group at both follow-ups. $p = 0.77$ Favorable (Yes/No/No effect): Yes Statistical significance: NS No Prompt Group Baseline: Int (n=1207): NR Comp (n=1003): NR Follow-up (in months): 25 months Int (n=1207): NR Comp (n=1003): NR Absolute change: NR Relative change: NR Narrative results: OR=1.01 (95% CI 0.24-4.21) No significant differences found between control vs prompt group or control vs no-prompt group at both follow-ups. $p = .77$ Favorable (Yes/No/No effect): No effect Statistical significance: NS
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		questionnaire and only able to use the intervention website (excluding the nonsmoking information or interactive elements) during follow-up periods.	
Author Year: de Josselin de Jong 2014 Location: the Netherlands Years for Study: May 2011-December 2011 Study Design: gRCT CG Suitability: Greatest Quality of Execution (# of limitations): Fair (4 of limitations)	Setting: School, Online, Home/Family Urbanicity: NR Eligibility: between 10-20 years; having computer/Internet literacy; sufficient command of Dutch; no previous exposure to the earlier version of Smoke Alert; and being a non-smoker or former smoker Recruitment: 1380 secondary schools throughout the country; principals sent a letter; 89 schools (10,500 students) agreed to participate. At baseline, 83 schools (6078 students) completed questionnaire, only 4979 eligible and enrolled. Sample size: Baseline 4979 (83 schools) Int 2469 Control 2510 6-months post-baseline Follow-up 18.0% (897/4979) Int 15.9% (392/2469) Control 20.1% (505/2510) Loss to f/u 82.0% Study Population: Adolescents Age: 13.7 years (range: 10-20) School level: Middle and High school	Intervention/program name: Smoke Alert Substance(s) focused: Tobacco specific Format: Computer, Internet/web-based Brief description of intervention and content: a web-based questionnaire with fully automated, computer-tailored feedback. Smokers receive messages on how to quit, while non-smokers learn strategies to avoid smoking. Implementer(s) <i>School involved in intervention or School not involved:</i> Yes in classroom Intervention duration: 1 day Intervention intensity: Number of sessions/modules: 1 Time per session: NR Total hours: NR Booster: No Additional components: A PDF copy of the advice was sent to students who voluntarily provided their email addresses, allowing them to re-read or print it at home. Incentive contest:	Outcome: Tobacco Use Initiation Measure: Students who were baseline non-smokers self-reporting any tobacco use at 6-month follow-up Baseline: 2011 Int (n=2469): Set at 0% Comp (n=2510): Set at 0% Follow-up (in months): 6-month post baseline Int (n=392 complete case): 3.8% Comp (n=505 complete case): 5.5% Absolute change: -1.7 percentage points Relative change: -30.9% Narrative results: Adjusted OR=0.25 (95%CI 0.05, 1.21) p=0.09 Favorable (Yes/No/No effect): Yes Statistical significance: No

	Grade level(s): 55.11% High (senior general secondary education / pre-university education), 44.89% Low (practical education / lower secondary professional education) Sex: 49.4% female, 50.6% male Race/ethnicity: NR Other NR Study population: Parents and Caregivers N/A Community characteristics: NR	students could win an iPod or cinema voucher by completing follow-up assessment (both study arms). Comparison group: Control group, given opportunity to obtain computer-tailored advice after completing follow-up questionnaire.	
Author Year: Deluca 2022 (Deluca 2021) Location: England Years for Study: October 2014-May 2016 Study Design: iRCT CG Suitability: Greatest Quality of Execution (# of limitations): Fair (2 of limitations)	Setting: Online, Clinic Urbanicity: NR Recruitment: Adolescents from 10 Emergency Departments in England, multi-center 3-arm study (only the app and the control arm are considered in this review) Participants categorized by alcohol risk status and randomized (low-risk subset were a randomly determined 1/3 of the patients) Eligibility: ED Attendees (14-18 years old); alert and oriented; proficient in English; living within 20 miles of ED; able to give informed consent for screening, intervention, and follow-up; own a smartphone or have internet access at home. Adolescents under 16: 'Gillick competent' or have parental/guardian consent.	Intervention/program name: SIPS city (electronic brief intervention) Substance(s) focused: Alcohol specific Format: Smartphone, Internet/web-based, Apps Brief description of intervention and content: off-line-capable web app for iPhone and Android OS phones (web format for participants without a smartphone). Game format for content Alcohol use information. Interactive including record keeping, personalized feedback and goal setting. Researchers helped participants with smartphones to download the app. before leaving the ED and demonstrated its key features. Implementer(s)	High Risk Intervention Arm Outcome: Other Alcohol Use Measures Measure: Adjusted mean weekly units of alcohol consumption Baseline Int (n=252): 4.55 Comp (n=241): 5.01 Follow-up (in months): 12 months Int (n=252): 3.2 Comp (n=241): 3.0 Absolute change: +0.3 units of alcohol Relative change: +2.2% Narrative results: Adjusted mean difference: 0.19 CI: (-0.71, 1.30) Favorable (Yes/No/No effect): No effect Statistical significance: NS Outcome: Development of Substance Use Disorders Alcohol Use Measure: Alcohol Use Disorders Identification Test: consumption (AUDIT-C score)

	High Risk (HR): Score ≥ 3 on Alcohol Use Disorders Identification Test (AUDIT-C) Low Risk (LR): Score < 3 on AUDIT-C Excluded: severe injury; gross intoxication; under care of specialist services for social or psychological needs; receiving treatment for alcohol or substance use within 6 months; participating in another alcohol-related research study. Sample size: Baseline 1091 HR 493 LR 598 Int 546 HR 252 LR 294 Control 545 HR 241 LR 304 <i>12-months post-baseline</i> Follow-up 71.2% (785/1091) Int 71.1% (388/546) HR 63.5% (160/252) LR 77.6% (228/294) Control 72.8% (397/545) HR 74.3% (179/241) LR 71.7% (218/304) Loss to f/u 28.8% Study Population: Adolescents (Int)	<i>School involved in intervention or School not involved:</i> not involved Intervention duration: 1 day Intervention intensity: up to app user Number of sessions/modules: at least one Time per session: NR Total hours: NR Booster: No Comparison group: Control group recruited from ED, only completed the baseline screening and 6- and 12-month follow-up assessments	Baseline Int (n=252): 4.87 Comp (n=241): 4.86 Follow-up (in months): 12 months Int (n=160): 5.1 Comp (n=179): 5.0 Absolute change: +0.1 score points Relative change: NA Narrative results: Adjusted mean difference: 0.082, CI: (-0.49, 0.65) There was no significant difference between intervention and control groups. Favorable (Yes/No/No effect): No effect Statistical significance: NS Low-Risk Intervention Arm Outcome: Other Alcohol Use Measures Measure: Adjusted mean weekly units of alcohol consumption Baseline Int (n=294): 0.2 Comp (n=304): 0.1 Follow-up (in months): 12 months Int (n=228): 0.1 Comp (n=218): 0.1 Absolute change: -0.1 units of alcohol Relative change: 50.0% Narrative results: Adjusted mean difference: 0.01 CI: (-0.10, 0.11) Favorable (Yes/No/No effect): No effect Statistical significance: NS Outcome: Development of Substance Use Disorders Alcohol Use
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	Age: range= 14-18 HR 16.1 years LR 15.2 years School level: High school Grade level(s): NR Sex: % female HR: 50.8% LR: 51.4% % male HR 49.2% LR: 48.6% Race/ethnicity: Black or African American HR 5.9% LR 17.3% Asian HR 0.3% LR 6.5% White HR 84.1% LR 61.2% Other race HR 9.7% LR 15.0% Other Study population: Parents and Caregivers N/A Community characteristics: NR		Measure: Alcohol Use Disorders Identification Test: consumption (AUDIT-C score) Baseline Int (n=294): 0.4 Comp (n=304): 0.4 Follow-up (in months): 12 months Int (n=228): 0.2 Comp (n=218): 0.2 Absolute change: 0 score points Relative change: NA Narrative results: Adjusted mean difference: -0.01 CI: (-0.12, 0.11) There was no significant difference between intervention and control groups. Favorable (Yes/No/No effect): No effect Statistical significance: NS Outcome: Alcohol Use Initiation Measure: % abstinent Baseline Int (n=294): 27.6% Comp (n=304): 27.0% Follow-up (in months): 12 months Int (n=228): 43.1% Comp (n=218): 43.3% Absolute change: -0.8 percentage points Relative change: -2.6% Narrative results: Adjusted mean difference: -0.01 CI: (-0.12, 0.11) Favorable (Yes/No/No effect): No effect Statistical significance: NS
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Author Year: Doumas 2014 Location: USA (NR: 2 schools in northwest) Years for Study: September-April, exact year NR Study Design: gRCT CG Suitability: Greatest Quality of Execution (# of limitations): Fair (3 of limitations)	Setting: School Urbanicity: NR Recruitment: two junior high schools in the northwest region assigned to either the intervention or control group. Parents contacted by the school in late September via letter by mail. Eligibility: All 538 9th-grade students who were present during the baseline assessment; only 513 enrolled Sample size: Baseline 513 Int NR Control NR <i>6-months post- intervention</i> Follow-up 69.8% (358/513) Loss to f/u 30.2% Study Population: Adolescents Age: 14.2 years (range: 13-16) School level: High school Grade level(s): 9th Sex: 52% female, 48% male Race/ethnicity: Black or African American 4.2% Asian 5.5% White 74.5% American Indian 3.6% Hawaiian/Other Pacific Islander 1.5%, Other race 0.8% Ethnicity Hispanic or Latino 9.9% Other	Intervention/program name: eCHECKUP TO GO Substance(s) focused: Alcohol specific Format: Internet/web-based Brief description of intervention and content: Provides personalized normative feedback on alcohol use and risk factors; quantity and frequency of drinking; comparison of one's drinking to U.S. norms; estimated risk for negative consequences and problematic drinking; financial cost of drinking. Perception of peer drinking compared to actual school drinking norms. Accurate information about alcohol. Referral information for local agencies. Also, offers potential strategies for reducing alcohol intake based on the student's responses to the feedback. Implementer(s) School involved in intervention or School not involved: Yes in computer lab Intervention duration: 1 day Intervention intensity: Number of sessions/modules: 1 Time per session: 30 min Total hours: 30 min Booster: No	Outcome: Frequency of Alcohol Use Measure: Mean frequency of drinking (8-point scale) Baseline Int (n=NR): 0.98 Comp (n=NR): 0.87 Follow-up (in months): 6 months Int (n=NR): 1.17 Comp (n=NR): 1.06 Absolute change: 0 scale points Relative change: NA Narrative results: No significant main effect for time, Wilks' Lambda = 1.00, F(1, 355) = 0.70, p = .40, $\eta^2p = .00$. Interaction Effect for Time $\times$ Group: Not significant, Wilks' Lambda = 1.00, F(1, 355) = 0.98, p = .32, $\eta^2p = .00$. There were no significant effects for weekly drinking quantity. Favorable (Yes/No/No effect): No effect Statistical significance: NS Outcome: Alcohol-Related Harms & Consequences Measure: Mean alcohol-related consequences in the past 30 days Rutgers Alcohol Problem Index (23-item) score Baseline Int (n=NR): 2.24 Comp (n=NR): 2.67 Follow-up (in months): 6 months Int (n=NR): 2.32 Comp (n=NR): 3.39 Absolute change: -0.64 score points
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	Study population: Parents and Caregivers N/A Community characteristics: NR	Comparison group: Usual care, Usual alcohol and drug education, delivered by a school counselor. Classroom presentation on health risks of tobacco, alcohol, and other drugs, reasons for use, and peer refusal	Relative change: NA Narrative results: No significant main effect for time, Wilks' Lambda = 1.00, $F(1, 355) = 0.13$, $p = .72$, $\eta^2p = .00$. Interaction Effect for Time $\times$ Group: Not significant, Wilks' Lambda = 1.00, $F(1, 355) = 0.01$, $p = .94$, $\eta^2p = .00$. There was no significant difference between the intervention and control groups Favorable (Yes/No/No effect): Yes Statistical significance: NS
Author Year: Doumas 2021 Location: Iowa, USA Years for Study: September-April, exact year NR Study Design: gRCT CG Suitability: Greatest Quality of Execution (# of limitations): Fair (2 of limitations)	Setting: School Urbanicity: Urban Recruitment: 14 English class periods across two schools, assigned to either the intervention or control group Eligibility: All 867 Senior enrolled in high school sites; 311 with parental consent and present during study enrolled Sample size: Baseline 311 Int 174 Control 137 <i>6-months post-baseline</i> Follow-up 79.4% (247/311) Int 78.7% (137/174) Control 80.3% (110/137) Loss to f/u 20.6% Study Population: Adolescents Age: 17.1 years (range: NR)	Intervention/program name: eCHECKUP TO GO Substance(s) focused: Alcohol specific Format: Computer, Internet/web-based Brief description of intervention and content: Online personalized normative feedback via text, graphs, and video recordings designed to reduce risk factors for alcohol use and increase protective behaviors. Domains include: <i>Drinking Profile:</i> Summary of drinking quantity and frequency <i>Financial Cost:</i> Pie graphs showing expenses on alcohol/tobacco vs. alternative purchases. <i>Physical Cost:</i> Calories from alcohol visualized as cheeseburgers; exercise equivalents; quiz on alcohol's physical effects. <i>Risk Factors:</i> Personal risk score for blackouts; tolerance levels; family history; age of initiation risks; drinking and driving dangers.	Outcome: Frequency of Alcohol Use Measure: Self-reported weekly drinking frequency on 8-point scale from 0 (do not drink) to 7 (every day). Baseline Int (n=173): 4.1 Comp (n=137): 3.1 Follow-up (in months): 6 months Int (n=173): 2.2 Comp (n=137): 2.1 Absolute change: -0.9 scale points Relative change: NA Narrative results: No significant Time $\times$ Condition interaction effect from baseline to the 6-month follow-up ($p = 0.14$) Favorable (Yes/No/No effect): Yes Statistical significance: No

	School level: High school Grade level(s): 12th Sex: 55.8% female, 44.2% male Race/ethnicity: Black or African American 1.6% Asian 4.5% White 85.1% American Indian 1.9% Other race 4.6% Ethnicity Hispanic or Latino 4.9% Other Study population: Parents and Caregivers N/A Community characteristics: NR	<i>Normative Comparisons:</i> Peer usage statistics vs. personal perceptions. <i>Reduction Strategies:</i> Willingness to adopt new habits; personalized strategy list. <i>Life Goals Alignment:</i> Health/fitness, relationships, career/life goals with substance use. Implementer(s) School involved in intervention or School not involved: Yes, in computer lab Intervention duration: 1 day Intervention intensity: Number of sessions/modules: 1 Time per session: 30 min Total hours: 30 min Booster: No Comparison group: Control group no intervention, assessment only	
Author Year: Estrada 2019 Related studies: Perrino 2018, Estrada 2017a International journal of environmental research and public health)	Setting: School Urbanicity: Urban and suburban Recruitment: 18 middle schools in the Miami-Dade County Public Schools (MDCPS); letters sent home with students and through referrals from school counselors; 454 families assessed for	Intervention/program name: eHealth Familias Unidas Substance(s) focused: General prevention Format: Computer, Internet/web-based Brief description of intervention and content: Intervention consisted of (1) e-parent group sessions accessed via Internet and (2) parent-	Outcome: Frequency of Alcohol Use Measure Mean (SD) for the past 90-days for alcohol use Baseline Int (n=113): 0.25 (1.46) Comp (n=117): 1.02 (9.24) Follow-up: 12 months Int (n=82): 0.37 (1.55) Comp (n=98): 0.39 (1.12)

Location: Miami-Dade County FL, USA Years for Study: April 2014 to October 2016 Study Design: iRCT CG Suitability: Greatest Quality of Execution (# of limitations): Fair (2 limitations)	eligibility, 230 families enrolled and randomized Eligibility: adolescents of Hispanic origin; in the 8th grade at enrollment; living with a primary caregiver willing to participate in the study; families living within the catchment area of a MDCPS school at baseline; access to the Internet and exhibiting a level I, II, or III behavior problem as defined by MDCPS. Sample size: Baseline 230 int. 113 Control: 117 <i>12-months post-baseline</i> Follow-up: 75.2% (173/230) int 65.5% (74/113) Control 84.6% (99/117) Loss to f/u 24.8% int. 34.5% Control: 15.4% Study Population: Adolescents Age: mean 13.6 years School level: Middle school Grade level(s): 8th Sex: female 37%; male 63% Race/ethnicity: race NR; 100% Hispanic 56.5% were born in the US 20% born in Cuba; 6% born in Honduras, 3% born in Columbia	adolescent family sessions delivered by a facilitator via web-based video conferencing software. Adolescent components: Tailored based on the goals and needs of each individual family (e.g., communication skills, behavior management), Parent components: web-based prerecorded video sessions simulating parent group discussions, a culturally syntonc telenovela series (i.e., soap opera), and interactive exercises. Implementer(s): School involved in intervention or School not involved: Not involved, 16 mental health professionals in community settings. Intervention duration: 3 months Intervention intensity: Number of sessions/modules: 12 total sessions e-parent group video sessions: 8 Family Sessions with adolescent: 4 Time per session: e-parent group video sessions: 30min Family Sessions with adolescent: 45min Total hours: 7 hours (e-parent group: 4hrs, family session 3hrs) Booster: No	Absolute change: +0.75 times in last 90 days Relative change: +287.1% Narrative: b = +0.02, 95% CI = -0.25, .28, p = 0.623, NS Favorable (Yes/No/No effect): No Statistical significance: No Outcome: Frequency of Cannabis Use Measure: Mean (SD) for the past 90-days for marijuana use Baseline Int (n=113): 1.01 (8.52) Comp (n=117): 0.20 (1.27) Follow-up: 12 months Int (n=82): 0.24 (1.27) Comp (n=98): 2.17 (11.85) Absolute change: -2.74 times in the last 90 days Relative change: -97.8% Narrative results: b = -0.52, 95% CI = -0.90, - 0.15, p<.01 Favorable (Yes/No/No effect): Yes Statistical significance: Yes Outcome: Frequency of Tobacco Use Measure Mean (SD) and trajectories for the past 90-days for cigarette use Baseline Int (n=113): 0.53 (4.80) Comp (n=117): 0.87 (9.23) Follow-up: 12 months Int (n=82): 0.00 (0.24) Comp (n=98): 0.81 (4.55)
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	Study population: Parents and Caregivers Yearly household income: > \$20,000 USD: 55.7% All other demographics NR Community characteristics: NR	Implementers were 16 mental health professionals, all with master's level degrees in their fields (e.g., mental health counseling, social work). Provided with 3 days of training included didactic instruction, role-plays, and group discussion of recorded sessions. Facilitators received four 2-h supervision sessions delivered throughout the course. Comparison group: Prevention as usual; HIV prevention curriculum provided by MDCPS via health and science classes. Six lessons delivered in a classroom setting providing information about HIV/AIDS and other sexually transmitted infections. Note: intervention group probably received this since current community prevention activities are offered to all students.	Absolute change: -0.47 times in last 90 days Relative change: -100.0% Narrative results: $b = -1.05$, 95%CI = $-1.72, -0.39$, $p < 0.01$ Favorable (Yes/No/No effect): Yes Statistical significance: Yes Outcome: Frequency of Illicit Drug Use (Inhalant) Measure: Mean number of times participants used inhalants in the last 90 days. Baseline Int (n=113): 0.85 (8.51) Comp (n=117): 0.07 (0.83) Follow-up: 12 months Int (n=82): 0.07 (0.56) Comp (n=98): 0.82 (7.68) Absolute change: -1.53 times in last 90 days Relative change: -98.8% Narrative results: $b = -1.19$ 95% CI = $-1.64, -0.75$, $p < 0.001$ Favorable (Yes/No/No effect): Yes Statistical significance: Yes Outcome: Frequency of Illicit Drug Use (Cocaine) Measure: Mean number of times participants used cocaine in the last 90 days Baseline Int (n=113): 0.82 (8.50) Comp (n=117): 0.07 (0.83) Follow-up: 12 months
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			Int (n=82): 0.01 (0.11) Comp (n=98): 0.83 (7.68) Absolute change: -1.57 times in last 90 days Relative change: -99.8% Narrative results: Past 90-day cocaine use decreased in the intervention group compared to the control b = -0.11 95% CI = -0.59, 0.37, NS Favorable (Yes/No/No effect): Yes Statistical significance: No Outcome: Prescription Drug Misuse Mean number of times participants used prescription drugs in the last 90-days Baseline Int (n=113): 0.04 (0.31) Comp (n=117): 0.86 (9.23) Follow-up: 12 months Int (n=82): 0.00 (0.15) Comp (n=98): 0.97 (7.76) Absolute change: -0.15 times in last 90 days Relative change: -100% Narrative: Modeled results b = -1.34, 95% CI = -2.33, -0.35, p<0.01 Favorable (Yes/No/No effect): Yes Statistical significance: Yes Outcome: Frequency of Illicit or Other Substances as a Combined Measure (Any drug) Measure: Mean number of times participants used drugs (summed total for marijuana, inhalants, cocaine, and other drugs) in the past 90 days Baseline
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			Int (n=113): 3.49 (33.87) Comp (n=117): 0.35 (2.68) Follow-up: 12 months Int (n=82): 0.35 (1.63) Comp (n=98): 4.68 (31.93) Absolute change: -7.4 times in last 90 days Relative change: -99.2% Narrative results: eHealth Familias Unidas vs prevention as usual were statistically different (b = -1.16, 95% CI = -1.33, -1.00, p<.001) Favorable (Yes/No/No effect): Yes Statistical significance: Yes Outcome: Frequency of Illicit or Other Substances as a Combined Measure (Drug use) Measure: Mean number of times participants used "other drugs" in the past 90 days Baseline Int (n=113): 0.82 (8.50) Comp (n=117): 0.00 (0.00) Follow-up: 12 months Int (n=82): 0.02 (0.15) Comp (n=98): 0.84 (7.68) Absolute change: -1.64 times in last 90 days Relative change: NA Narrative results: b = +0.06 95% CI = -1.76, 0.40, NS Favorable (Yes/No/No effect): Yes Statistical significance: No Outcome: Sexual Risk Behaviors Measure: Condomless sex, past-90-day sex trajectories Baseline:
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			Int (n=NR): NR Comp (n=NR): NR Follow-up (in months): 12 months post-baseline Int (n=NR): NR Comp (n=NR): NR Absolute change: NR Relative change: NR Narrative results: No statistically significant intervention effects (b = 0.02, 95% CI = -0.31,.35, p=0.89, effect size= .11). NS Favorable (Yes/No/No effect): No effect Statistical significance: No
Author Year: Evers 2012 Location: USA (NR) Years for Study: NR Study Design: gRCT CG Suitability: Greatest Quality of Execution (# of limitations): Fair (3 limitations)	Setting: School, Online Urbanicity: Urban, suburban, rural Recruitment: 22 Middle/junior high school schools across different regions of the country. Schools selected and randomized based on willingness to participate and match criteria regarding type of community, region of the country, and percentage of students eligible for free lunches. Eligibility: All students at participating middle schools with parental consent. Teachers and school administrators involved in the implementation of the intervention program, but no specific inclusion or exclusion criteria mentioned for these providers. Sample size: Baseline 1590 Int 865 Control 725	Intervention/program name: "Your Decisions Count" Alcohol, Tobacco and Other Drugs Substance(s) focused: General Prevention Format: Computer, Internet/web-based, CD-ROM Brief description of intervention and content: individualized, interactive intervention sessions, along with staff, administrator, and parent guides. Program focused on cessation and prevention of alcohol, tobacco, marijuana, and other drug use. Content includes assessment questions, feedback tailored to student responses and TTM constructs, images, and QuickTime movies. Multimedia components are provided on a CD-ROM to minimize download time.	Outcome: Prevalence of Illicit or Other Substances as a Combined Measure Measure: % of students who were no longer using any of the four substances (alcohol, tobacco, marijuana, or other drugs) at post-test past 30 days Baseline Int (n=NR): 100% Comp (n=NR): 100% Mean follow-up: 14m post-baseline Int (n=NR): 28.7% Comp (n=NR): 22.4% Absolute change: +6.3 percentage points Relative change: +28.1% Narrative results: There was a significant difference over time in cessation rates (t= 3.17, p<0.01, OR= 1.8) Favorable (Yes/No/No effect): Yes Statistical significance: Yes

	<i>14-months post-baseline</i> Follow-up 49.8% (792/1590) Int 51.0% (441/865) Control 48.4% (351/725) Loss to f/u 50.2% Study Population: Adolescents Age: years (range: 10 – 14) School level: Middle school Grade level(s): 6th: 15.3% 7th: 45.7% 8th: 38.2% 9th: 0.3% Other: 0.4% Sex: 47.4% female, 52.6% male Race/ethnicity: Black or African American 10.40% White 76.30% Ethnicity, Hispanic or Latino 11.80% Other SES: Eligible for free lunches 37.7% Study population: Parents and Caregivers N/A Community characteristics: N/A	Feedback Sessions: Provide normative feedback comparing individual use to successful peers. Subsequent sessions offer normative and ipsative feedback on progress since the last session. Audio Component: Onscreen text is read aloud through computer-generated audio. Short movies of student testimonials. Implementer(s) School involved in intervention or School not involved: Yes, in classroom Intervention duration: 3 months Intervention intensity: monthly Number of sessions/modules: 3 Time per session: 30 mins Total hours: 1 hr 30 mins Booster: No Comparison group: Control group, no details	
Author Year: Fang 2013 (Fang 2010) Location: USA (19 states)	Setting: Online, Home/Family, or other convenient locations Urbanicity: NR Recruitment: advertisements on craigslist.org and in mailings to Asian	Intervention name: NR Substance(s) focused: General prevention Format: Computer, Internet/web-based	Outcome: Frequency of Alcohol Use Measure: 30-day alcohol use (number of alcoholic drinks (i.e., beer, wine, malt liquor, wine coolers, sweet alcoholic drinks, mixed drinks, or hard liquor)) Baseline Int (n=56): 0.04

Years for Study: September 2007-May 2010 Study Design: iRCT CG Suitability: Greatest Quality of Execution (# of limitations): Fair (2 limitations)	community social service agencies. 206 mother- child dyads screened, 108 dyads enrolled, and each other- child dyad blocked randomized via number sequence, with block sizes varying randomly between 4 and 12 Eligibility: Asian girls, between 11 and 14 years, private access to a computer, and have mothers' active participation and consent Sample size: 108 mother child dyads Int 56 Control 52 <i>24-months post-intervention</i> Follow-up 86.1% (93/108) Int 89.2% (50/56) Control 82.7% (43/52) Loss to f/u 10.8% Study Population: Adolescents Age: 12.9 years (range: 11-14) School level: Middle school, High school Grade level(s): NR, age range = 6-9th grade Sex: 100% Female Race/ethnicity: 100% Asian American Education: NR Income: NR Other NR Study population: Parents and caregivers:	Brief description of intervention and content: Family interaction theory with mother-daughter dyads. Web content delivered by voiceover narration, animated graphics, and games, session content involved skill demonstrations and interactive exercises that required the joint participation of mothers and daughters. Content on: -Mother-daughter relationship skills -Conflict management -Substance use opportunities -Body image activities -Stress management -Problem solving skills -Self-efficacy Implementer(s) <i>School involved in intervention or School not involved:</i> not involved Intervention duration: 9 weeks or 4 months (Sept. 2007 to Dec. 2007) Intervention intensity: Number of sessions or modules: 9 Time per session: 45 minutes Total hours: 6.75 hrs Booster: Yes Comparison group: Control-arm dyads received no intervention.	Comp (n=52): 0.29 Mean follow-up: 24 months Int (n=50): 0.05 Comp (n=43): 0.1 Absolute change: +0.02 number of drinks Relative change: -+262.5% Narrative results: Time by intervention results indicated that the Intervention-arm girls reported significantly fewer instances of using alcohol, $F(2, 90) = 3.38$, $p = 0.038$ compared to control. Favorable (Yes/No/No effect): Yes Statistical significance: Yes Outcome: Frequency of Tobacco Use Measure: 30-day cigarette use (number of occasions they smoked cigarettes) Baseline Int (n=56): 0.07 Comp (n=52): 0.17 Mean follow-up: 24 months Int (n=50): 0.02 Comp (n=43): 1.95 Absolute change: -1.83 times in 30 days Relative change: -97.51% Narrative results: Intervention-arm girls reported fewer instances of using cigarettes $F(2, 90) = 1.80$, $p=0.171$. Favorable (Yes/No/No effect): Yes Statistical significance: No Outcome: Frequency of Cannabis Use Measure: 30-day marijuana use (number of occasions they used marijuana)
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	Age: 39.4 years Sex: Female 100% (mother dyad) Race/ethnicity: 100% Asian American Education: High school 22.2% College 24.6% Graduate school 35.2% Income: NR Other Single parent, 13.0% Community characteristics: NR		Baseline Int (n=56): 0.01 Comp (n=52): 0.04 Mean follow-up: 24 months Int (n=50): 0 Comp (n=43): 0.17 Absolute change: -0.14 times in 30 days Relative change: -100.0% Narrative results: Intervention-arm girls reported significantly fewer instances of using marijuana, $F(2, 90) = 3.24$, $p=0.043$ compared to controls. Favorable (Yes/No/No effect): Yes Statistical significance: Yes Outcome: Frequency of Prescription Drug Misuse Measure: 30-day prescription drug (mis)use substance use (the number of occasions they took prescription drugs (e.g., Ritalin, Adderall, Vicodin, OxyContin, Xanax, Valium, Ambien, and Lunesta) just to get high in the past 30 days. Baseline Int (n=56): 0.64 Comp (n=52): 0.46 Mean follow-up: 24 months Int (n=50): 0 Comp (n= 43): 3.6 Absolute change: -3.78 times in 30 days Relative change: -100.0% Narrative results: Intervention-arm girls reported significantly fewer instances of using prescription drugs for nonmedical purposes, $F(2, 90) = 3.15$, $p = 0.047$ compared to control.
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			Favorable (Yes/No/No effect): Yes Statistical significance: Yes Outcome: Depression Symptoms Measure: Depressive symptoms Children's Depression Inventory (example: "I'm sad once in a while" 10 items: scale; A higher score indicates a greater propensity on each measure. Baseline Int (n=56): 1.60 Comp (n=52): 1.66 Follow-up: 24 months Int (n=50): 1.23 Comp (n=43): 1.67 Absolute change: -0.38 scale points Relative change: NA Narrative results: Relative to control, intervention girls showed less depressed mood (Wald = 1.17, p= .315) Favorable (Yes/No/No effect): Yes Statistical significance: No
Author Year: Griffin 2022 Location: USA (21.7% Northeast, 21.7% Midwest, 39.1% South and 17.3% West) Years for Study: Fall 2018 - Spring 2020 Study Design: gRCT	Setting: School, Online Urbanicity: NR Recruitment: Using national lists of middle school principals, teachers, and district-level administrators, schools were randomly selected from different geographic areas and emailed recruitment packets. 23 schools enrolled, matched by region then each pair randomized. Eligibility: K-12 schools including middle school grades, otherwise not reported	Intervention/program name: Hybrid Digital Substance Abuse Prevention Substance(s) focused: General Prevention Format: Computer, Laptop, Smartphone, iPad/Tablet, Internet/web-based Brief description of intervention and content: 15 web-based modules adapted from Life Skills Training content were provided to view before attending related classroom sessions, which	Adjusted proportions for current (past month) use at post-test for substance use by condition using MIXED models (Table 6) Outcome: Prevalence of Alcohol Use Measure: Student self-reported past month use of alcohol Baseline: Int (n=622): 0.9% Comp (n=825): 0.7%

CG Suitability: Greatest Quality of Execution (# of limitations): Fair (2 limitations)	Sample size: Baseline 1799 Int 755 (13 schools) Control 1044 (10 schools) <i>3-months post-baseline</i> Follow-up 80.4% (1447/1799) Int 82.4% (622/755) Control 79.0% (825/1044) Loss to f/u 19.6% Study Population: Adolescents Age: 11.9 years (range: 5 – 18) School level: Elementary, Middle and/or High school Grade level(s): Middle schools- grades 6-8 (58%) grades 6-9 (12%) Other schools - kindergarten to grade 8 (12%) kindergarten to grade 12 (18%) Sex: 51.7% female, 48.3% male Race/ethnicity: Black or African American 16.8% Asian 2.8% White 67.4% American Indian 4.1% Native Hawaiian/Pacific Islander 1.0% Ethnicity Hispanic or Latino 12.2% Other Study population: Parents and Caregivers N/A	included behavioral rehearsal scenarios for skill practice. During the classroom sessions, teachers guided students as they practiced these skills and acted out realistic scenarios with their peers. 6 Teacher-led classroom sessions: (1) Self-Image, goal setting, and making decisions; (2) Coping with stress, anxiety, and anger; (3) Social relationship skills; (4) Assertiveness and resolving conflicts; (5) Resisting tobacco, alcohol, and marijuana use; and (6) Prescription drug misuse, refusal skills and strategies to decline when offered or when asked to share their own Implementer(s) School involved in intervention or School not involved: Yes, in classroom Intervention duration: 6-12 weeks Intervention intensity: weekly Number of sessions/modules: 15 modules over 6 sessions Time per session: 4-10 mins Total hours: 1 hr 33 mins Booster: No Comparison group: Usual care,	Follow-up (in months): 1 month post intervention; 2-4 months post baseline Int (n=622): Adjusted 2.02% (SE 0.83) Comp (n=825): Adjusted 3.28% (SE 0.93) Absolute change: -1.26 percentage points Relative change: -38.4% Narrative results: The proportion of students reporting alcohol use was lower in the intervention group relative to the control group, no p value reported. Favorable (Yes/No/No effect): Yes Statistical significance: NR Outcome: Prevalence of Alcohol Binge or Heavy Drinking (Drunkenness) Measure: % of student self-reported past month drunkenness Baseline: Int (n=622): NR Comp (n=825): NR Follow-up (in months): 1 month post intervention; 2-4 months post baseline Int (n=622): Adjusted 1.34% (SE 0.63) Comp (n=825): Adjusted 3.31% (SE 0.69) Absolute change: -1.97 percentage points Relative change: -59.5% Narrative results: The proportion of students reporting drunkenness was significantly lower in the intervention group relative to the control group [F(1,12.5) = 5.26, p < 0.02]. (MIXED model) Favorable (Yes/No/No effect): Yes Statistical significance: Yes
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	Community characteristics: NR	standard health education curriculum provided by schools.	Outcome: Prevalence of Cannabis Use Measure: Student self-reported past month marijuana use Baseline: Int (n=622): 1.1% Comp (n=825): 1.2% Follow-up (in months): 1 month post intervention; 2-4 months post baseline Int (n=622): Adjusted 1.96% (SE 1.80) Comp (n=825): Adjusted 2.67% (SE 1.45) Absolute change: -0.71 percentage points Relative change: -26.6% Narrative results: The proportion of students reporting marijuana use was lower in the intervention group relative to the control group, p-value not reported. (MIXED model). Favorable (Yes/No/No effect): Yes Statistical significance: NR Outcome: Prevalence of Tobacco Use (Smoking) Measure: Student self-reported past month use of cigarette smoking Baseline: Int (n=622): 0.4% Comp (n=825): 1.0% Follow-up (in months): 1 month post intervention; 2-4 months post baseline Int (n=622): Adjusted 1.23% (SE 0.60) Comp (n=825): Adjusted 2.48% (SE 0.64) Absolute change: -1.25 percentage points Relative change: -50.4% Narrative results: p-value not reported
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			Favorable (Yes/No/No effect): Yes Statistical significance: No Outcome: Prevalence of Tobacco Use (Electronic cigarettes) Measure: Student self-reported past month use of cigarette smoking Baseline: Int (n=622): NR Comp (n=825): NR Follow-up (in months): 1 month post intervention; 2-4 months post baseline Int (n=622): Adjusted 0.94% (SE 0.73) Comp (n=825): Adjusted 2.86% (SE0.80) Absolute change: -1.92 percentage points Relative change: -67.1% Narrative results: The proportion of students reporting e-cigarette use was significantly lower in the intervention group relative to the control group $F(1,12.5) = 3.52, p < 0.05$ (MIXED model) Favorable (Yes/No/No effect): Yes Statistical significance: Yes Outcome: Frequency of Prescription Drug Misuse Measure: Student self-reported past month sharing prescription medications (nine-point Likert scale with 1=never, 9=more than once a day) Baseline: 1799 students in baseline survey Int (n=622): NR Comp (n=825): NR Follow-up (in months): 1 month post intervention; 2-4 months post baseline
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			Int (n=622): Adjusted 1.10 (SE 0.04.) Comp (n=825): Adjusted 1.15 (SE 0.04) Absolute change: -0.05 scale points Relative change: NA Narrative results: p-value not reported (MIXED model) Favorable (Yes/No/No effect): No effect Statistical significance: NR
Author Year: Haug 2017 Location: Switzerland Years for Study: September 2014 – September 2015 Study Design: gRCT CG Suitability: Greatest Quality of Execution (# of limitations): Fair (2 limitations)	Setting: School, Online Urbanicity: NR Recruitment: 11 vocational and upper secondary schools. Of the 1399 students present, 1371 assessed for eligibility, but 1041 (74.4%) enrolled. Classes were the unit of assignment to condition (n=80 classes) Eligibility: Students in recruited schools providing consent to participate and owning a mobile phone Sample size: Baseline 1041 Int 547 students (43 classes) Control 494 students (37 classes) <i>3-months post- intervention</i> Follow-up 92.8% (966/1041) Int 93.4% (511/547) Control 92.1% (455/494) Loss to f/u 7.2% Study Population: Adolescents Age: 16.8 years (range: 16 – 19) School level: Vocational/High school Grade level(s): NR	Intervention/program name: MobileCoach Alcohol Substance(s) focused: Alcohol specific Format: Smartphone, iPad/Tablet, Internet/web-based, Text Messaging Brief description of intervention and content: web-based assessment and feedback (conducted in a school session) with tailored text messages sent directly to participant's mobile phone. Web-Based Feedback: -Drinks per week compared to age/gender-specific norms. -Financial cost of alcohol consumption. -Caloric intake from alcoholic beverages. -Risky Single Occasion Drinking (RSOD) frequency comparison. Text Message Assessment/Activities: -Content and frequency based on initial risk categorization into low, moderate, or high-risk groups.	Outcome: Prevalence of Alcohol Binge or Heavy Drinking Measure: Student self-reported prevalence of risky single occasion drinking (RSOD) in the past 30 days (equivalent to heavy or binge drinking) Baseline: Int (n=547): 47.2% Comp (n=494): 42.7% Follow-up (in months): 3 months post end of intervention; 6 months post baseline Int (n=547): 41.3% Comp (n=494): 45.3% Absolute change: -8.5 percentage points Relative change: -17.5% Narrative results: OR=0.62 (95% CI 0.44 to 0.87) p<0.01 Favorable (Yes/No/No effect): Yes Statistical significance: Yes Outcome: Frequency of Alcohol Use (Amount) Measure: Student self-reported number of alcoholic drinks consumed in a typical week Baseline: Int (n=547): 5.47

	Sex: 52.6% female, 47.4% male Race/ethnicity: N/A Other Study population: Parents and Caregivers N/A Community characteristics: N/A	<i>For All Risk Groups:</i> - Three SMS assessments - Motivation to stay low-risk drinking levels - Strategies for resisting alcohol <i>Low Risk Group:</i> 16 text messages: Welcome message, 3 assessment prompts, 11 tailored feedback texts, Goodbye message <i>Moderate & High-Risk Groups:</i> 27 text messages: Welcome message, 3 assessment prompts, 22 tailored feedback texts, Goodbye message <i>Additional for Moderate Risk Group:</i> -Personalized feedback on alcohol-related issues. -Estimated peak BAC, associated risks. <i>Additional for High-Risk Group:</i> -Information on local outpatient alcohol counseling services. Implementer(s) School involved in intervention or School not involved: Yes, in classroom Intervention duration: 3 months	Comp (n=494): 4.78 Follow-up (in months): 3 months post end of intervention; 6 months post baseline Int (n=547): 4.53 Comp (n=494): 4.41 Absolute change: -0.57 drinks per week Relative change: -9.4% Narrative results: Cohen's d=0.08 p=0.58 Favorable (Yes/No/No effect): Yes Statistical significance: No
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		Intervention intensity: (web session within school lesson and 3m text messages at leisure; 1-3 messages per week) Number of sessions/modules: 9 Time per session: NR Total hours: NR Booster: No Comparison group: Control group, no intervention, assessment-only	
Author Year: Haug 2022 Location: Europe (Switzerland) Years for Study: 2021-2022 Study Design: gRCT CG Suitability: Greatest Quality of Execution (# of limitations): Fair (3 limitations)	Setting: School, Online Urbanicity: NR Recruitment: 2275 students from 159 vocational school classes in Switzerland, 1351 (59.4%) enrolled Eligibility: Students in the participating vocational school classes, minimum age of 15, have a smartphone, and informed consent from schools and students Sample size: Baseline 1351 Int 688 (76 classrooms) Control 663 (77 classrooms) <i>6-months post-baseline</i> Follow-up 71.2% (962/1351) Int 64.0% (440/688) Control 76.8% (509/663) Loss to f/u 28.8% Study Population: Adolescents Age: 17.3 years (range: 17-18)	Intervention/program name: ready4life Substance(s) focused: General Prevention, Substance specific alcohol; tobacco/e-cig/cannabis Format: Smartphone, Apps Brief description of intervention and content: a mobile app-based program for addiction prevention by promoting life skills and reducing risk behaviors. Students installed the app after introductory school education class session. -Individualized virtual coaching by a conversational agent in weekly dialogues (2–5-min interactions per week) -Tailored content to individual baseline assessments and chosen risk behaviors. Selected two out of six possible program modules: (1) stress, (2) social skills, (3) social media & gaming, (4) tobacco/e-cigarette smoking, (5) cannabis, (6) alcohol.	Outcome: Prevalence of Alcohol Binge or Heavy Drinking Measure: Student self-reported at-risk alcohol consumption in the past 30 days (consider as heavy drinking) Baseline Int (n=688): 31.0% Comp (n=663): 35.1% Follow-up (in months): 6 months post baseline; 2-month post end of 4m intervention Int (n=688): 20.1% Comp (n=663): 27.5% Absolute change: -3.3 percentage points Relative change: -17.24% Narrative results: At risk alcohol drinking was significantly reduced compared to control group students OR=0.68 (95%CI 0.52, 0.89) p<0.01 Favorable (Yes/No/No effect): Yes Statistical significance: Yes Outcome: Frequency of Alcohol Use-(Consumption)

	School level: Vocational/High school Grade level(s): NR Sex: 43.4% female, 56.6% male Race/ethnicity: N/A Other mean # of baseline risk behaviors: 1.5 Study population: Parents and Caregivers N/A Community characteristics: N/A	Behavior theories: -Social-Cognitive Theory (e.g., goal-setting, self monitoring) -Social Norms Approach (e.g., normative feedback) -Motivational Interviewing (e.g., decisional balance) Implementer(s) School involved in intervention or School not involved: Yes, in classroom Intervention duration: 4 months (2 months per selected risk behavior) Intervention intensity: weekly Number of sessions/modules: 6 Time per session: NR Total hours: NR Booster: No Comparison group: Control group, school session to explain the study and the baseline and follow-up assessments. Offered Delayed intervention	Measure: Student self-reported quantity of alcohol use (drinks) in the past 30 days Baseline: Int (n=688): 14.8 (SD 34.5) Comp (n=663): 15.1 (SD 33.0) Follow-up (in months): 6 months post baseline; 2-month post end of 4m intervention Int (n=688): 6.8 (SD 15.3) Comp (n=663): 9.5 (SD 16.9) Absolute change: -2.4 drinks in the past 30 days Relative change: -26.97% Narrative results: Number of drinks in the past 30 days decreased significantly more among intervention group students (coefficient = -2.66; Cohen's d=0.07; p<0.01) Favorable (Yes/No/No effect): Yes Statistical significance: Yes Outcome: Prevalence of Cannabis Use Measure: Self-reported cannabis use in the past 30 days Baseline Int (n=688): 24.3% Comp (n=663): 21.1% Follow-up (in months): 6 months post baseline; 2 month post end of 4m intervention Int (n=688): 18.6% Comp (n=663): 14.9% Absolute change: +0.5 percentage points Relative change: +8.39% Narrative results: Self-reported cannabis use increasing among intervention group students
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			compared to control group OR 1.29 (95% CI 0.90, 1.85), $p=0.16$ Favorable (Yes/No/No effect): No Statistical significance: No Outcome: Frequency of Cannabis Use (Quantity) Measure: Student self-reported number of times used cannabis in the past 30 days Baseline: Int (n=688): 2.5 Comp (n=663): 2.1 Follow-up (in months): 6 months post baseline; 2-month post end of 4m intervention Int (n=688): 1.7 Comp (n=663): 1.7 Absolute change: -0.4 times in the last 30 days Relative change: -16.0% Narrative results: Frequency of cannabis use decreased slightly among intervention group students compared to controls (coefficient -0.07; $p=0.81$; Cohen's $d=0.06$) Favorable (Yes/No/No effect): Yes Statistical significance: No Outcome: Prevalence of Tobacco Use Measure: Self-reported tobacco or e-cigarette use in the past 30 days Baseline Int (n=688): 36.6% Comp (n=663): 37.1% Follow-up (in months): 6 months post baseline; 2-month post end of 4-month intervention
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			Int (n=688): 26.0% Comp (n=663): 31.5% Absolute change: -5 percentage points; NS Relative change: -16.33% Narrative results: Self-reported tobacco use decreased among intervention group students, but the differences were NS; OR=0.74 (95%CI 0.55, 1.01) p=0.06 Favorable (Yes/No/No effect): Yes Statistical significance: No Outcome: Frequency of Tobacco Use (Quantity) Measure: Self-reported number of cigarettes/e-cigarettes smoked in the past 30 days (past week x 4) Baseline: Int (n=688): 89.9 Comp (n=633): 78.0 Follow-up (in months): 6 months post baseline; 2-month post end of 4m intervention Int (n=688): 54.2 Comp (n=633): 55.5 Absolute change: -13.2 cigarettes in the past 30 days Relative change: -15.27% Narrative results: Number of cigarettes smoked decreased among intervention group students more than it did for control group coefficient=-6.0 p=0.40 Cohen's d=0.06 Favorable (Yes/No/No effect): Yes Statistical significance: No Outcome: Composite Risk Behaviors
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			Measure: Composite score for student self-reported risk behaviors (0-4; At-risk alcohol, 30-day tobacco, 30-day cannabis, problematic internet use) Baseline Int (n=688): 1.5 (SD 1.2) Comp (n=663): 1.5 (SD 1.2) Follow-up (in months): 6 months post baseline; 2-month post end of 4m intervention Int (n=688): NR Comp (n=663): NR Absolute change: NR Relative change: NR Narrative results: Stronger decrease of addictive behaviors between baseline and follow up in the intervention group compared to the control group OR (ITT) = 0.77 (95%CI 0.67, 0.88) p<0.01 Favorable (Yes/No/No effect): Yes Statistical significance: Yes Outcome: Mental Health-Perceived Stress Measure: Student self-reported perceived stress in the past 30 days based on single item measure of stress symptoms (1-5 scale) Baseline Int=688): 3.1 Comp (n=663):3.2 Follow-up (in months): 6 months post baseline; 2-month post end of 4m intervention Int (n=NR): 2.7 Comp (n=NA):3.1 Absolute change: -0.3 scale points Relative change: NA
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			Narrative results: Student perceived stress was slightly reduced among intervention students compared to control group students (coefficient = -0.28, $p < 0.01$, Cohen's $d = 0.27$) Favorable (Yes/No/No effect): Yes Statistical significance: Yes
Author Year: Ho 2021 Location: Hong Kong, China Years for Study: September 2016 - April 2017 Study Design: gRCT CG Suitability: Greatest Quality of Execution (# of limitations): Good (1 limitations)	Setting: School, Online Urbanicity: Urban Recruitment: Random sample of secondary schools in Hong Kong ($n=40$) in 4 major regions (Hong Kong Island, Kowloon, and East and West New Territories); 30 (75%) were eligible, randomized Eligibility: Consenting students at secondary schools, excluding international schools, schools targeting students with special needs, and not speaking Chinese Sample size: Baseline 7792 (30 schools) Int 4294 (15 schools) Control 3498 (15 schools) <i>3-months post- intervention</i> Follow-up 86.0% (6700/7792) Int 84.0% (3607/4294) Control 88.4% (3093/3498) Loss to f/u 14.0% Study Population: Adolescents Age: 13.3 years (range: 12– 15) School level: Middle school Grade level(s): Hong Kong Secondary 1-3 (Equivalent to US 7-9 grades)	Intervention/program name: Internet Quiz Game Intervention Substance(s) focused: Alcohol specific Format: Internet/web-based Brief description of intervention and content: multiple choice interactive internet quiz competition Content: 1000 multiple choice questions with real-time ongoing score tracking. Questions are grouped into blocks to ensure a minimum of two questions from each of the domain included in every set of 20 questions. Bonus Points: Referrals to family and friends contribute to the student's score. Small cash awards prizes for top 10 students in each school Implementer(s) School involved in intervention or School not involved: No, 30-min introduction to study by researchers in school class, but intervention done outside of school.	Outcome: Prevalence of Alcohol Use Measure: Student self-reported any alcohol drinking in the past 30 days Baseline Int ($n=4294$): 13.6% Comp ($n=3498$): 13.9% Follow-up (in months): 3 months Int ($n=4294$ ITT): 10.4% Comp ($n=3498$ ITT): 11.6% Absolute change: -0.9 percentage points; adjusted Relative change: -7.76% Narrative results: Risk Difference = -1.73 per 100 (95%CI -3.73 to -0.02) RR=0.86 (95%CI 0.74 to 0.99) $p=0.048$ Favorable (Yes/No/No effect): Yes Statistical significance: Yes Outcome: Frequency of Alcohol Binge or Heavy Drinking Measure: Student self-reported number of times drunk in the past 30 days Baseline: Int ($n=4294$): Not reported Comp ($n=3498$): Not reported Follow-up (in months): 3 months Int ($n=4294$): Not reported

	Sex: 48.0% female, 52.0% male Race/ethnicity: N/A SES: Family income mean 27.27 (Hong Kong \$1000) Other Study population: Parents and Caregivers: N/A Community characteristics: N/A	Intervention duration: 1 month Intervention intensity: Number of sessions/modules: 5 module topics, split across 1000 questions. Time per session: NR Total hours: NR Booster: No Comparison group: control group, Health education group received a printed leaflet, summarizing alcohol-related health information and included 8 hyperlinks (6 in Chinese) to alcohol-related online resources.	Comp (n=3498): Not reported Absolute change: NR Relative change: NR Narrative results: Intervention group participants reported being drunk less often than those in the control [RR=0.54 (95% CI: 0.27, 1.10); p=0.09] Risk Difference -1.19 (95% CI -1.91 to 0.25) Favorable (Yes/No/No effect): Yes Statistical significance: No Outcome: Antisocial Behaviors Measure: Student self-reported number of alcohol-related troubles (not defined in paper) Baseline: Int (n=4294): NR Comp (n=3498): NR Follow-up (in months): 3 months Int (n=4294): NR Comp (n=3498): NR Absolute change: NR Relative change: NR Narrative results: Absolute: Risk difference -0.94 (95%CI -1.08 to -0.58) Relative: Risk Ratio (RR) =0.20 (95%CI 0.08 to 0.51); p<0.001 Favorable (Yes/No/No effect): Yes Statistical significance: Yes Outcome: Alcohol Use-Initiation Measure: Subset: Student baseline non-users self-reporting any alcohol drinking in the past 30 days Baseline: Subset Int (n=3709): Baseline non-users 0%
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			Comp (n=3012): Baseline non-users 0% Follow-up (in months): 3 months Int (n=3709): NR Comp (n=3012): NR Absolute change: NA Relative change: -27.0% Narrative results: Risk Difference = -1.62 per 100 (95% CI -2.65 to -0.26) RR=0.73 (95% CI 0.55 to 0.96); p=0.02 Favorable (Yes/No/No effect): Yes Statistical significance: Yes
Author Year: Jander 2016 Location: the Netherlands Years for Study: January - June 2014 Study Design: gRCT CG Suitability: Greatest Quality of Execution (# of limitations): Fair (4 limitations)	Setting: School, Home/Family Urbanicity: NR Recruitment: All Dutch schools of either lower secondary education and lower vocational training or higher secondary education; 600 invited, 44 recruited and randomized Eligibility: Dutch secondary/vocational schools with students aged 15-19 years providing consent. Schools had to provide individual student computer internet access at school. Sample size: Baseline 2649 (34 schools) Int 1622 students (19 schools) Control 1027 students (15 schools) 4-months post-baseline Follow-up 31.1% (824/2649) (27 schools) Int 28.1% (456/1622) (13 schools) Control 35.8% (368/1027) (14 schools)	Intervention/program name: Alcohol Alert (Dutch Web-based Computer- tailored Game intervention) Substance(s) focused: alcohol (binge drinking) specific Format: Computer, Internet/web-based Brief description of intervention and content: computer tailored binge drinking prevention game during school-based computer sessions. Sessions could also be done outside of school. Students received reminders to complete game sessions. <i>Parent engagement intervention.</i> For students providing a parent e-mail, the parents received an invitation to a separate website. They responded to a short questionnaire and could also receive computer- tailored feedback on how to set appropriate	Note: Data taken from the text when the data in the text and tables differ Outcome: Prevalence of Alcohol Binge or Heavy Drinking Measure: Student self-reported episode(s) of binge drinking in the past 30 days (converted to binary any/none) Baseline Int (n=1622): 46.7% Comp (n=1025): 57.0% Follow-up (in months): 4 months post baseline Int (n=456): 42.6% Comp (n=368): 50.0% Absolute change: +2.8 percentage points Relative change: +3.9% Narrative results: Control adjusted OR 0.40 (95% CI 0.18-0.83); p=0.01 Favorable (Yes/No/No effect): No effect Statistical significance: NS

	Loss to f/u 68.9% Study Population: Adolescents Age: 16.3 years (range: 15-19) School level: High school Grade level(s): grades 4-6, vocational Sex: 46.9% female, 53.1% male Race/ethnicity: race NR, Dutch 87.8% Non-Dutch 12.2% Other Study population: Parents and Caregivers All demographic information NR Parental participation in intervention 199 invited by adolescent, only 91 (45.7%) participated at baseline, and 76 (83.5%) at end of study. Community characteristics: NR	rules concerning alcohol use and how to communicate with their child about alcohol use. Implementer(s) School involved in intervention or School not involved: Yes, used school computer room, but could also be done outside of school. Intervention duration: 1.5 months Intervention intensity: Number of sessions/modules: 3-5 (3 game sessions, 1 challenge offer, 1 challenge f/u session Time per session: NR Total hours: NR Booster: No Comparison group: Control group, computer-web assessment only (baseline and 4-month follow-up)	Outcome: Prevalence of Alcohol Binge or Heavy Drinking (Excessive drinking episode) Measure: Student self-reported episode of drinking 10+ drinks in session in the past week Baseline: Int (n=1622): 7.2% Comp (n=1027): 12.6% Follow-up (in months): 4 months Int (n=456): 6.1% Comp (n=368): 10.2% Absolute change: +1.3 percentage points Relative change: +5.1% Narrative results: There was no significant difference in excessive drinking between groups [OR=0.48, (CI: 0.18, 1.25), p=0.13] Favorable (Yes/No/No effect): No effect Statistical significance: No Outcome: Frequency of Alcohol Use (Amount) Measure: Student self-reported mean number of drinks consumed in the past week Baseline: Int (n=1622): 3.4 standard drinks Comp (n=1027): 5.1 standard drinks Follow-up (in months): 4 months post baseline Int (n=456): 3.3 standard drinks Comp (n=368): 4.6 standard drinks Absolute change: +0.4 standard drinks in past week Relative change: +7.6% Narrative results: B=1.82 (SE=1.39), p=0.19 Favorable (Yes/No/No effect): No effect Statistical significance: No
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Author Year: Knight 2019 Location: USA MA (Greater Boston area) Years for Study: February 2015 - March 2019 Study Design: iRCT CG Suitability: Greatest Quality of Execution (# of limitations): Fair (2 limitations)	Setting: Clinic Urbanicity: Urban Recruitment: Pediatric providers and pediatric patients from 3 community and 2 hospital-based practices in greater Boston area. Of those invited, 965 (87.9%) of 1098 enrolled. Eligibility: Patients categorized based on baseline substance use and associated risk into two cohorts: <i>Intervention Effect Cohort:</i> reporting any substance use or riding risk. <i>Prevention Effect Cohort:</i> reporting no substance use or riding risk. Excluded: practitioner determination of medical or emotional instability, inability to read English at a 3rd-grade level, or unavailability for follow-up visits Sample size: Baseline 869 Int 626 Baseline risk subset 148 Prevention subset 478 Control 243 Baseline risk subset 63 Prevention subset 180 <i>12-months post-baseline</i> Follow-up 79.6% (692/869)	Intervention/program name: Computer-facilitated screening and brief intervention (CSBI) Substance(s) focused: General Prevention Format: iPad/Tablet, Internet/web-based Brief description of intervention and content: Computer-facilitated screening and brief intervention (CSBI) clinic office system. Components included: -Tablet-based self-administered screening questionnaire with tailored (personalized) risk assessment feedback -Tablet-delivered substance use prevention content -Provider point-of-care decision support to encourage brief substance use -Provider delivered brief counseling a -Provider encourage content including a Contract for Life document to discuss and sign, and a flyer with a link to a 20-minute family-centered online educational program, Teen-Safe, on preventing adolescent substance use. Implementer(s) School involved in intervention or School not involved: not involved Intervention duration: 1 day throughout 35-month intervention period	Outcome: Other Alcohol Use Measures Measure: Patient self-reported time after clinic visit till next use adjusted hazard ratios for time to first post visit use of alcohol or other drugs Baseline Int (n=148): NA Comp (n=63): NA Follow-up (in months): 12 months Int (n=148): NA Comp (n=163): NA Absolute change: NA Relative change: NA Narrative results: Adjusted hazard ratios from Cox proportional hazards modeling: 0.69 (95% CI, 0.47-1.02) Adjusted hazard ratios <1 indicated that adolescent patients in the intervention group tended to have longer time to first use compared with adolescent patients in the control group. Favorable (Yes/No/No effect): Yes Statistical significance: No Outcome: Frequency of Alcohol Binge or Heavy Drinking (Heavy episodic drinking) Measure: Patient self-reported time after clinic visit till next heavy drinking episode Baseline: Int (n=148):NA Comp (n=63): NA Follow-up (in months): 12 months Int (n=148): NA Comp (n=63): NA Absolute change: NA
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	Int 80.2% (502/626) Control 78.1% (190/243) Loss to f/u 19.8% Study Population: Adolescents Age: 16.4 years (range: 12-18) School level: Middle and High school Grade level(s): full sample NR; subset at substance use risk Grade 9-12: 95.3% Sex: 54.0% female, 46.0% male Race/ethnicity: White 49.80% Other race or multi-race 24.2% Ethnicity Hispanic or Latino 26.1% Study population: Parents and Caregivers Education: 70.9% college graduates Marital status: 68.2% both parents at home All other demographics NR Community characteristics: NR	Intervention intensity: Number of sessions/modules: 1 Time per session: 6 to 9 mins Total hours: 15 mins Booster: No Comparison group: Usual Care, Self-administered computer screening but did not receive any other CSBI components. All practitioners received training in the CSBI, which may have affected their delivery of substance use related counseling.	Relative change: NA Narrative results: Adjusted hazard ratios from Cox proportional hazards modeling: 0.66 (95% CI, 0.40-1.10) for HED Favorable (Yes/No/No effect): Favorable Statistical significance: No Outcome: Other Cannabis Use Measures Measure: Patient self-reported time after clinic visit until next cannabis use Baseline: Int (n=148): NA Comp (n=63): NA Follow-up (in months): 12 months Int (n=148): NA Comp (n=63): NA Absolute change: NA Relative change: NA Narrative results: Adjusted hazard ratios from Cox proportional hazards modeling: 0.62 (95% CI, 0.41-0.94) Uptake of cannabis use was slower among intervention group adolescents Favorable (Yes/No/No effect): Yes Statistical significance: Yes Outcome: Alcohol Use Initiation Measure: Patient self-reported time after clinic visit till next use (self-reported lifetime use) Baseline: Int (n=478): 0% by baseline no use assignment Comp (n=180): 0% by baseline no use assignment Follow-up (in months): 12 months
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			Int (n=478): NA Comp (n=180): NA Absolute change: NA Relative change: NA Narrative results: Adjusted hazard ratios from Cox proportional hazards modeling: 0.87 (95% CI, 0.57-1.31) for alcohol use showed a decrease in the intervention group compared to control. Favorable (Yes/No/No effect): Yes Statistical significance: No Outcome: Cannabis Use Initiation Measure: Patient self-reported time after clinic visit until ever use Baseline: Int (n=478): 0% by baseline no use assignment Comp (n=180): 0% by baseline no use assignment Follow-up (in months): 12m Int (n=478): NA Comp (n=180):NA Absolute change: NA Relative change: NA Narrative results: Adjusted hazard ratios from Cox proportional hazards modeling: 0.76 (95% CI, 0.44-1.32) Uptake of cannabis use was slower among intervention group adolescents. Favorable (Yes/No/No effect): Yes Statistical significance: No
Author Year: Malmberg 2015 (Malmberg 2014) Location: the Netherlands	Setting: School, Online Urbanicity: NR Recruitment: Of the 123 eligible secondary schools that were invited, 23 schools including a total of 3784 adolescents agreed	Intervention/program name: The Healthy School and Drugs (HSD) Substance(s) focused: General Prevention	Substance Use (Estimated using categories 3-5 in Table 1 in Malmberg 2015 for alcohol and tobacco) E-Modules vs Control

Years for Study: December 2008 – December 2011 Study Design: gRCT CG Suitability: Greatest Quality of Execution (# of limitations): Fair (3 limitations)	to participate and randomized, but only 3542 completed baseline assessment. Eligibility: All students included unless parents refused or terminated participation. Schools excluded if they had HSD experience in the previous 2 years and not offering a four-year education program. Sample size: Baseline 3542 Int 2351 E-learning 1225 (7 schools) Integral 1126 (9 schools) Control 1191 (7 schools) <i>32-months post-baseline</i> Follow-up 66.1% (2340/3542) Int 70.1% (1648/2351) E-learning 67.3% (825/1225) Integral 73.1% (823/1126) Control 58.1% (692/1191) Loss to f/u 33.9% Study Population: Adolescents Age: 13.0 years (range: 11 – 15) School level: Middle and High school Grade level(s): 1st grade (described as a transition year post elementary to help students determine the right education pathway) Sex: 50.6% female, 49.4% male Race/ethnicity: race NR; Dutch descent = 96%	Format: Computer, Internet/web-based Brief description of intervention and content: <i>E-Learning Condition:</i> Designed to prevent (or postpone) the onset of use. Lessons aimed to increase knowledge about substances, educate on risks of substance use and prepare adolescents to cope with peer pressure via refusal skills (i.e. increasing self-efficacy). Modules: consisting of small films, animations, interactive tasks, chatrooms, and forums; covering alcohol (4 lessons), tobacco (3 lessons), and marijuana (3 lessons). Students work at their own pace during biology or counselor lessons, or in a special project week. <i>Integral condition:</i> full multi-component program: digital e-learning modules stated above, and three additional intervention components (i.e. parental participation, regulation and monitoring and counselling). Implementer(s) School involved in intervention or School not involved: Yes, in classroom Intervention duration: 3 yrs E-learning = (total: 4m per year) Integral (E-learning + 3 additional items (1 in the 1st yr, and other 2 in 2nd yr) Intervention intensity: weekly	Outcome: Prevalence of Alcohol Use Measure: Prevalence of student self-reported use of alcohol (any) in the past month. Baseline: Int (n=1330): 10.3% Comp (n=1259): 10% Follow-up (in months): 32 months post baseline Int (n=825): 59.5% Comp (n=692): 52.7% Absolute change: +6.5 percentage points Relative change: 9.6% Narrative results: No significant effect on Logistic regression analysis adjusted for sex, age, education, ethnicity and cluster effects. p=0.288 Favorable (Yes/No/No effect): No Statistical significance: No Outcome: Prevalence of Alcohol Binge or Heavy Drinking (categories 2-4 in Table 1) Measure: Prevalence of student self-reported binge drinking (any) in the past month Baseline: Int (n=1330): 6.9% Comp (n=1259): 5.9% Follow-up (in months): 32 months post baseline Int (n=825): 46.2% Comp (n=692): 37.1% Absolute change: +8.1 percentage points Relative change: 6.5% Narrative results: No significant effect on Logistic regression analysis adjusted for sex, age, education, ethnicity and cluster effects. p-value not reported
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	Study population: Parents and Caregivers NR Community characteristics: NR	Number of sessions/modules: E-learning = 10 lessons Integral = 13 lessons Time per session: NR Total hours: NR Booster: No Comparison group: Usual care, did not start any substance-related interventions during study period. Because many schools in the Netherlands have employed basic initiatives to decrease or prevent substance use, they were allowed to continue their “business-as-usual” activities.	Favorable (Yes/No/No effect): No Statistical significance: No Outcome: Prevalence of Tobacco Use Measure: Prevalence of student self-reported current use of tobacco (occasionally or daily; categories 4 and 5 in table 1) Baseline: Int (n=1330): 4.3% Comp (n=1259): 3.9% Follow-up (in months): 32 months post baseline Int (n=825): 24.1% Comp (n=692): 17.3% Absolute change: +6.4 percentage points Relative change: +26.3% Narrative results: No significant effect on Logistic regression analysis adjusted for sex, age, education, ethnicity and cluster effects. p=0.746 Favorable (Yes/No/No effect): No Statistical significance: No Note: Cannabis use was only measured as lifetime use (initiation) Full Intervention vs Control Outcome: Prevalence of Alcohol Use Measure: Prevalence of student self-reported use of alcohol (any) in the past month Baseline: Full Int (n=1195):14.3% Comp (n=1259): 10%
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			Follow-up (in months): 32 months post baseline Int (n=823): 52.0% Comp (n=692): 52.7% Absolute change: - 5.0 percentage points Relative change: -31.0% Narrative results: No significant effect on Logistic regression analysis adjusted for sex, age, education, ethnicity and cluster effects. p=0.445 Favorable (Yes/No/No effect): Yes Statistical significance: No Outcome: Prevalence of Alcohol Binge or Heavy Drinking Measure: Prevalence of student self-reported binge drinking (any) in the past month Baseline: Int (n=1330): 9.5% Comp (n=1259): 5.9% Follow-up (in months): 32 months post baseline Int (n=825): 39.3% Comp (n=692): 37.1% Absolute change: -1.4 percentage points Relative change: -34.2% Narrative results: No significant effect on Logistic regression analysis adjusted for sex, age, education, ethnicity and cluster effects. p-value not reported Favorable (Yes/No/No effect): Yes Statistical significance: No Outcome: Prevalence of Tobacco Use Measure: Prevalence of student self-reported current use of tobacco (occasionally or daily)
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			Baseline: Full Int (n=1195): 5.9% Comp (n=1259): 3.9% Follow-up (in months): 32 months post baseline Int (n=823): 27.6% Comp (n=692): 17.3% Absolute change: +8.3 percentage points Relative change: +5.5% Narrative results: No significant effect on Logistic regression analysis adjusted for sex, age, education, ethnicity and cluster effects. p=0.214 Favorable (Yes/No/No effect): No Statistical significance: No Note: Cannabis use was only measured as lifetime use (initiation) Lifetime use (initiation) rates reported in Malmberg 2015 (Table 1) Logistic regression adjusted for sex, age, education, ethnicity and cluster effects with p-value from Table 3 in Malmberg 2014 although these subset analyses focused on never users at baseline E-Modules vs Control Outcome: Alcohol Use Initiation Measure: Prevalence of student self-reported lifetime use of alcohol (any) Baseline: Int (n=1330): 28.4% Comp (n=1259): 25.4% Follow-up (in months): 32 months post baseline
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			Int (n=825): 78.8% Comp (n=692): 74.9% Absolute change: +0.9 percentage points Relative change: -5.9% Narrative results: No significant effect on Logistic regression analysis adjusted for sex, age, education, ethnicity and cluster effects. p=0.549 Favorable (Yes/No/No effect): No effect Statistical significance: No Outcome: Cannabis Use Initiation Measure: Prevalence of student self-reported lifetime use of marijuana (any) Baseline: Int (n=1330): 2.4% Comp (n=1259): 1.3% Follow-up (in months): 32 months post baseline Int (n=825): 18.2% Comp (n=692): 15.7% Absolute change: +1.4 percentage points Relative change: -37.2% Narrative results: No significant effect on Logistic regression analysis adjusted for sex, age, education, ethnicity and cluster effects. p=0.732 Favorable (Yes/No/No effect): No effect Statistical significance: No Outcome: Tobacco Use Initiation Measure: Prevalence of student self-reported lifetime use of tobacco (any) Baseline: Int (n=1330): 22.6% Comp (n=1259): 17.3%
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			Follow-up (in months): 32 months post baseline Int (n=825): 48.4% Comp (n=692): 39.6% Absolute change: +3.5 percentage points Relative change: -6.4% Narrative results: No significant effect on Logistic regression analysis adjusted for sex, age, education, ethnicity and cluster effects. p=0.746 Favorable (Yes/No/No effect): No effect Statistical significance: No Full Intervention vs Control Outcome: Alcohol Use Initiation Measure: Prevalence of student self-reported lifetime use of alcohol (any) Baseline: Full Int (n=1195): 32.2% Comp (n=1259): 25.4% Follow-up (in months): 32 months post baseline Full Int (n=823): 74.8% Comp (n=692): 74.9% Absolute change: -6.9 percentage points Relative change: -21.2% Narrative results: No significant effect on Logistic regression analysis adjusted for sex, age, education, ethnicity and cluster effects. p=0.351 Favorable (Yes/No/No effect): Yes Statistical significance: No Outcome: Cannabis Use Initiation Measure: Prevalence of student self-reported lifetime use of marijuana (any)
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			Baseline: Full Int (n=1195): 2.8% Comp (n=1259): 1.3% Follow-up (in months): 32 months post baseline Int (n=823): 20.0% Comp (n=692): 15.7% Absolute change: +2.8 percentage points Relative change: -40.9% Narrative results: No significant effect on Logistic regression analysis adjusted for sex, age, education, ethnicity and cluster effects. p=0.214 Favorable (Yes/No/No effect): No effect Statistical significance: No Outcome: Tobacco Use Initiation Measure: Prevalence of student self-reported lifetime use of tobacco (any) Baseline: Full Int (n=1195): 26.1% Comp (n=1259): 17.3% Follow-up (in months): 32 months post baseline Int (n=823): 49.6% Comp (n=692): 39.6% Absolute change: +1.2 percentage points Relative change: -17.0% Narrative results: No significant effect on Logistic regression analysis adjusted for sex, age, education, ethnicity and cluster effects. p=0.119 Favorable (Yes/No/No effect): No effect Statistical significance: No
Author Year: Martinez-Montilla 2020 (Vargas-Martínez 2019)	Setting: School, Online, Home/Family Urbanicity: Urban	Intervention/program name: Alerta Alcohol	Outcome: Prevalence of Alcohol Binge or Heavy Drinking

Location: Spain Years for Study: January - June 2017 Study Design: gRCT CG Suitability: Greatest Quality of Execution (# of limitations): Fair (3 limitations)	Recruitment: Randomly selected public schools from each of the 8 provinces in Andalusia in Southern Spain; 37 schools were identified as eligible and contacted, 16 high schools (2 from each province) accepted, and randomized while matching intervention groups with a province. Adolescents recruited from schools through their teachers and counselors. Eligibility: Schools included if: (1) public secondary schools from Andalusia, (2) schools belonging to provincial capitals, and (3) schools with access to the Internet and an equipped information and communication technology room available for students. Adolescents included if: aged 15-19 years; enrolled in 4th year compulsory secondary education (CSE), 1st-year baccalaureate programs (BP), or 1st -year vocational training (VT); had Internet access at schools and in their homes. Excluded if: had language difficulties or previously done Binge Drinking prevention programs. Sample size: Baseline 1247 (15 schools) Int 742 (8 schools) Control 505 (7 schools) <i>4-months post-baseline</i> Follow-up 49.1% (612/1247) Int 47.3% (351/742)	Substance(s) focused: Alcohol specific Format: Computer, Internet/web-based Brief description of intervention and content: 3 sessions featuring short stories about a main character who binge drank the night before and discusses with friends the events of the previous night. Drinking scenario took place in three settings: at home, at a celebration, and in a public place. Stories presented alongside questions aimed at reducing alcohol consumption and binge drinking (BD). Concise, direct, and tailored/personalized messages were provided to encourage participation in the intervention. E-mails were sent for 2 home sessions students had to complete, including a booster session. Final session involved completing a questionnaire at school. Implementer(s) School involved in intervention or School not involved: Yes in computer lab Intervention duration: 5 weeks Intervention intensity: weekly Number of sessions/modules: 6 Time per session: 1 hr	Measure: Student self-reported binge drinking in the past 30 days Baseline Int (n=742): 40.2% Comp (n=505):37.4% Follow-up (in months): 4 months post baseline Int (n=351): 32.2% Comp (n=261): 33.0% Absolute change: -3.6 percentage points Relative change: -9.2% Narrative results: Adjusted OR=1.106 (95%CI 0.730-1.674) p=0.63 Favorable (Yes/No/No effect): Yes Statistical significance: No Outcome: Prevalence of Alcohol Binge or Heavy Drinking (Heavy Episodic Use) Measure: Student self-reported episodic heavy drinking in the past 30 days (10 or more drinks) Baseline: Int (n=742): 1.1% Comp (n=505): 1.6% Follow-up (in months): 4 months post baseline Int (n=351): 0.3% Comp (n=261): 2.7% Absolute change: -1.9 percentage points Relative change: -83.8% Narrative results: Intervention participants were significantly less likely to report episodic drinking compared to control participants [OR = 9.129 (CI: 1.107-75.259), p=0.04] Favorable (Yes/No/No effect): Yes
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	Control 51.7% (261/505) Loss to f/u 50.9% Study Population: Adolescents Age: 16.3 years (range: 15 – 19) School level: High school Grade level(s): 4th year CSE, 1st year BP, and 1st year VT (equivalent to U.S. 10th, 11th, & 12th) Sex: 53.0% female, 47.0% male Race/ethnicity: race NR, Spanish: 94.7% SES: Average pocket money in euros (weekly) 10.61 intervention, 11.21 control Other family social status based on the Family Affluence Scale: Low = 2.76% Medium = 32.30% High = 64.94% Study population: Parents and Caregivers Education: Number of years mother in school 20.4 years (int) 22.7 years (control) Other demographics NR Community characteristics: NR	Total hours: 6 hrs Booster: Yes Comparison group: Control group, assessment only	Statistical significance: Yes Outcome: Frequency of Alcohol Use (Consumption) Measure: Student self-reported mean number of drinks in the past week Baseline: Int (n=742): 1.47 (SD 3.78) standard drinks Comp (n=505): 1.42 (SD 4.96) standard drinks Follow-up (in months): 4 months post baseline Int (n=351): 1.64 (SD 3.66) Comp (n=261): 1.39 (SD 4.12) Absolute change: +0.2 standard drinks in the past week Relative change: +13.7% Narrative results: p=0.53 Favorable (Yes/No/No effect): No effect Statistical significance: No Outcome: Alcohol Use Initiation Measure: Students self-reporting abstinence from alcohol (no use at baseline and no use at 4m assessment) Baseline: Int (n=742): 65.5% Comp (n=505): 68.5% Follow-up (in months): 4 months post baseline Int (n=351): 68.9% Comp (n=261): 65.5% Absolute change: +6.4 percentage points Relative change: +10.0% Narrative results: NR Favorable (Yes/No/No effect): Yes
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			Statistical significance: No; p-value not reported Outcome: Morbidity-Related Outcomes (Health related quality of life) Measure: Students self-reported overall score (EQ Utility Index) on EQ-5D-5 L questionnaire Baseline: Int (n=742): 0.942 (0.11) Comp (n=505): 0.925 (0.15) Follow-up (in months): 4 months post baseline Int (n=349): 0.944 (0.14) Comp (n=263): 0.94 (0.13) Absolute change: -0.013 scale points Relative change: NA Narrative results: No significant difference between intervention and control groups (p-value NR) Favorable (Yes/No/No effect): No effect Statistical significance: No
Author Year: Murry 2019 Location: USA, Tennessee Years for Study: Summer 2009–Fall 2012 Study Design: iRCT CG Suitability: Greatest Quality of Execution (# of limitations):	Setting: Community, Online Urbanicity: Rural Recruitment: middle schools in 5 rural counties in Tennessee provided a list of families with 6th-grade African American students. Letter mailed to parents or guardians; community liaison contracted families by phone or home visit. Of those contacted, 78% (n=550), consented to participate, and 418 randomized Eligibility: African American 6th graders and their primary caregivers, who speak	Intervention/program name: Pathways for African Americans Success (PAAS) Substance(s) focused: General Format: Computer Brief description of interventions and content: Adapted SAAF program for computer-based delivery based on computers usage research in local communities. Similar content in each interactive intervention: concurrent parent and adolescents' sessions, followed by joint family session.	Outcome: Frequency of Illicit or Other Substances as a Combined Measure (Youth risk behavior) Measure: combined scale (Combines substance use and sexual risk) ITT analysis Technology arm (Digital arm) Baseline Int (n=141): NR Comp (n=136): NR Follow-up (in months): 22.6 months Int (n=127): NR Comp (n=108): NR Absolute change: NR Relative change: NR

Fair (2 limitations)	English. County selection based on rurality, proportion of African American residents, evidence of high rates of teen pregnancy, and negative overall health indicators. Sample size: Baseline - 418 Int - 282 Technology-based - 141 In-person group - 141 Control- 136 <i>22.6 months post-baseline</i> Follow-up – 81% (337/418) Int – 81% (229/282) Technology-based – 90.1% (127/141) In-person group- 72.3% (102/141) Control – 79% (108/136) Loss to f/u - 19% (81/418) Study Population: Adolescents Age: NR School level: Middle school Grade level(s): 6th Sex: 54% female, 46% male Race/ethnicity: 100% African American Study population: Parents and Caregivers Age: 40 years Sex: 84% female, 16% male Race/ethnicity: 100% African American Education: 87% completed high school Employment: 63% employed, 40hr/week	<i>Technology, “highway to success”:</i> discussion activities, customizable avatars, topics visually displayed to illustrate associations between choices and consequences. Adolescents concurrently worked 45-min on separate computers, technology intervention assistants (TIA) then escorted to parent’s computer to complete 45-min family session, with 3-min questions & discuss topic for parents and children. <i>Small in-person groups:</i> Group organized role-playing activities, guided discussions, & time for questions. Parent sessions - universally adaptive parenting practices, positive parenting (communication, establishing rules about risk behaviors, monitoring) and racially specific parenting. Adolescent sessions - universal (e.g., risk resistance skills and future orientation) and culturally specific content (dealing with racism). Implementer(s) <i>School involved in intervention or School not involved:</i> School not involved, implemented in community setting. Intervention duration: 6 weeks	Narrative results: Significant decrease in risk behavior over time (b= -0.17; 95% CI= -0.31, -0.04) p= 0.04, in the intervention group compared to control. Favorable (Yes/No/No effect): Yes Statistical significance: Yes
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	Income: 56% income adequate to meet their needs; 14% received public assistance. Marital status: 50% single parents, 37% married Other details: 13% caregiver grandparents, 2.7 avg children per home, 50% owned their own home Community characteristics: rurality index scores >11 (scale of 0% least rural to 16 or greater % most rural), > 30% African American residents, > 600 African American teens in the targeted age range, teen pregnancy rates of 69%, which is 13% higher than the average for TN, and state health indicators reflect poor health determinant outcomes in TN, (include health care, health behaviors, socioeconomic factors related to health, and physical environment)	Intervention intensity: weekly Number of sessions or modules: 6 Time per session: Technology - 1.5h; In-person - 2h Total hours: Technology - 9hr; In-person - 12h Booster: No Comparison group: Control group, noninteractive literature; received home-mailed educational materials containing same topical content information as the weekly intervention groups	
Author Year: Nadasan 2017 Location: Romania Years for Study: November 2014- May 2015 Study Design: gRCT CG Suitability: Greatest Quality of Execution (# of limitations):	Setting: School, Online Urbanicity: Urban, suburban Recruitment: All 16 high schools in Tirgu Mures, Romania, with a total of 82 ninth grade classes. Schools randomized and 79 classes (2002 students) enrolled. Eligibility: Schools with at least one 9th grade class and at least 15 students per class; functional IT laboratory; and a willingness by the school principal to participate. Adolescents had to be a 9th grade student, have basic computer skills, and parental written consent.	Intervention/program name: ASPIRA is the Romanian acronym for the translated and adapted version of ASPIRE, "A Smoking Prevention Interactive Experience," Substance(s) focused: Tobacco specific Format: Computer, Internet/web-based Brief description of intervention and content: Designed using the social cognitive theory and transtheoretical model of change. Includes embedded animations, videos, and interactive activities (quizzes and games) organized into 5 learning modules.	Outcome: Prevalence of Tobacco Use Measure: Student self-reported smoking in the past 30 days (among baseline experimenters or non-current smokers: n=369) Baseline Int (n=NR): NR Comp (n=NR): NR Follow-up (in months): 5 months post intervention Int (n=NR): NR- Comp (n=NR): NR Absolute change: Not reported Relative change: Not reported Narrative results: Adjusted OR=0.85 (95% CI 0.44–1.63) p<0.10

Fair (4 limitations)	Sample size: Baseline 2002 (16 schools) Int 1038 students (8 schools) Control 964 students (8 schools) <i>6-months post-baseline</i> Follow-up 68.4% (1369/2002) Int 65.0% (675/1038) Control 72.0% (694/964) Loss to f/u 31.6% Study Population: Adolescents (Int) Age: 14.9 years (range: NR) School level: High school Grade level(s): 9th Sex: 48.6% female, 51.4% male Race/ethnicity: race NR, Romanian 55%, Non-Romanian 45% Other details academic achievement: High grades: 71.0% Low grades: 29.0% Study population: Parents and Caregivers N/A Community characteristics NR	Content covers smoking-related: - Basics of prevention and cessation. - Individual and social determinants - Health and financial consequences - Nicotine addiction - Impact on the environment - Strategies and techniques to quit smoking and resist urges - Managing stress, peer pressure, social temptations, and mood changes Implementer(s) School involved in intervention or School not involved: Yes in computer lab Intervention duration: 5 weeks Intervention intensity: Number of sessions/modules: 6 Time per session: 45 to 50 mins Total hours: 4.5-5.0 Booster: Yes Comparison group: Control group; no intervention	Favorable (Yes/No/No effect): Yes Statistical significance: No Outcome: Tobacco Use-Initiation Measure: Student self-reported initiation of smoking (Initiation of smoking between baseline and 6-month follow-up among never-smokers at baseline; n=707) Baseline: Int (n=NR): set at 0% Comp (n=NR): set at 0% Follow-up (in months): 5 months post intervention Int (n=NR): NR Comp (n=NR): NR Absolute change: Not reported Relative change: Not reported Narrative results: Adjusted OR=0.65 (95%CI 0.41–1.04), p<0.10 Favorable (Yes/No/No effect): Yes Statistical significance: No Outcome: Tobacco Use Initiation (Electronic cigarettes) Measure: Student self-reported initiation of electronic cigarette use Baseline: Int (n=NR): set at 0% Comp (n=NR): set at 0% Follow-up (in months): 5 months post intervention Int (n=NR): NR Comp (n=NR): NR Absolute change: Not reported Relative change: Not reported
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			Narrative results: Adjusted OR=0.81 (95%CI: 0.60–1.11), p-value not reported Favorable (Yes/No/No effect): Yes Statistical significance: No Outcome: Tobacco Use-Initiation (Waterpipe) Measure: Student self-reported initiation of waterpipe smoking Baseline: Int (n=NR): NR Comp (n=NR): NR Follow-up (in months): 5 months post intervention Int (n=NR): NR Comp (n=NR): NR Absolute change: Not reported Relative change: Not reported Narrative results: Adjusted OR= 1.17 (95%CI: 0.65–2.11), p-value not reported Favorable (Yes/No/No effect): No Statistical significance: No
Author Year: Newton 2010 Location: Australia Years for Study: March 2007 - November 2008 Study Design: gRCT CG Suitability: Greatest	Setting: School, Online Urbanicity: Urban Recruitment: 33 independent high schools across the larger Sydney metropolitan area approached, 10 committed schools. Of 1296 eligible students, 944 (73%) consented and were randomized, but only 764 (80.9%) completed baseline assessment. Eligibility: Year 8 students (13 years old) from secondary schools. Sample size: Baseline 764	Intervention/program name: Climate Schools: Alcohol and Cannabis Substance(s) focused: Alcohol and Cannabis Format: Computer, Internet/web-based Brief description of intervention and content: Lessons divided into two parts focusing on alcohol first, then cannabis later within the same school year. Part one: Internet-based cartoon storyline followed individually for about 15-20 minutes	Outcome: Frequency of Alcohol Use (Consumption) Measure: Frequency drinking to excess on a single occasion (using the SHAHRP Patterns of Alcohol index) in past week Baseline Int (n=397): 3.55 Comp (n=367): 0.84 Follow-up (in months): 12 months Int (n=331): -0.63 Comp (n=275): 5.3 Absolute change: -8.64 drinks in past week Relative change: -102.81%

Quality of Execution (# of limitations): Fair (3 limitations)	Int 397 students (5 schools) Control 367 students (5 schools) <i>12-months post- intervention</i> Follow-up 79.3% (606/764) Int 83.4% (331/397) Control 74.9% (275/367) Loss to f/u 20.7% Study Population: Adolescents Age: 13.1 years (range: NR) School level: High school Grade level(s): Year 8 Sex: 40.0% female, 60.0% male Race/ethnicity: NR Study population: Parents and Caregivers N/A Community characteristics: no standardized measure to compare schools on socioeconomic status; but students at independent schools come predominately from high socio-economic backgrounds.	focusing on real-life situations involving alcohol and cannabis. Part two: Classroom activity led by teachers to reinforce cartoon content. Implementer(s) School involved in intervention or School not involved: Yes, in classroom Intervention duration: 4 months Alcohol module (Semester 1) Alcohol and cannabis module (Semester 2) Intervention intensity: Number of sessions/modules: 12 Time per session: 40 mins Total hours: 8hrs Booster: Yes Comparison group: Usual care, Usual health classes during Year 8. Except for one, all schools provided syllabus-based drug education curriculum. No control schools used computer or internet-based delivery for their programs. Programs largely followed social influence models and were based on harm-minimization strategies. Lessons focused on alcohol and cannabis varied (range: 5- 22 lessons).	Narrative results: At 12 months, the control group increased average weekly consumption (mean difference = 5.30 standard drinks) more than the intervention group. (mean difference = -0.63 standard drinks) ($P < 0.02$). Favorable (Yes/No/No effect): Yes Statistical significance: Yes Outcome: Frequency of Alcohol Binge or Heavy Drinking Measure: Drinking to excess on a single occasion (using the SHAHRP Patterns of Alcohol index) in past week Baseline Int (n=397): NA Comp (n=NR367): NA Follow-up (in months): 12 months Int (n=331): NA Comp (n=275): NA Absolute change: -0.8 scale points (author reported change scores Int=0.05, Cont=0.85) Relative change: NA Narrative results: Control group increased drinking to excess (mean difference = 0.85 occasions) significantly more than the intervention group (mean difference = 0.05 occasions) ($p < 0.02$) Favorable (Yes/No/No effect): Yes Statistical significance: Yes Outcome: Frequency of Cannabis Use Measure: Past week cannabis use Baseline
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			Int (n=397): 0.13 Comp (n=367): 0.04 Follow-up (in months): 12 months Int (n=331): -0.01 Comp (n=275): 0.21 Absolute change: -0.31 times per week Relative change: -101.47% Narrative results By 12 months, reduction in frequency of use for the intervention group (mean difference = -0.01 times/week) compared to control (mean difference = 0.21 times/week) diminished compared to 6-month follow-up (p= 0.11). Favorable (Yes/No/No effect): Yes Statistical significance: No Outcome: Alcohol-Related Harms & Consequences Measure: Mean alcohol-related harms score using the SHAHRP survey (12-items) Baseline Int (n=397): 6.86 Comp (n=367): 2.87 Follow-up (in months): 12 months Int (n=331): 3.06 Comp (n=275): 9.17 Absolute change: -10.11 score points Relative change: NA Narrative results: Intervention condition was not found to be a significant predictor of alcohol-related harms [p= 0.23 (intercept); p= 0.61 (slope)]. Favorable (Yes/No/No effect): Yes Statistical significance: No Outcome: Cannabis-related Harms & Consequences
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			Measure: Cannabis harms were assessed with six questions derived from the Adolescent Cannabis Problems Questionnaire Baseline Int (n=397): 0.28 Comp (n=367): 0.19 Follow-up (in months): 12 months Int (n=331): 0 Comp (n=275): 0.12 Absolute change: -0.21 score points Relative change: NA Narrative results: No significant difference between intervention and control groups, p=0.37 Favorable (Yes/No/No effect): No effect Statistical significance: No Outcome: Mental Health Measure: Psychological distress 5-point Likert scale from 0 (None of the time) to 4 (All of the time). Higher score represented higher distress Baseline Int (n=397): NR Comp (n=367): NR Follow-up (in months): 12 months Int (n=331): NR Comp (n=275): NR Absolute change: NR Relative change: NR Narrative results: Control group continued to have significantly higher levels of psychological distress than the Climate group at the 12-month follow-up F(1,375) =5.55, p=0.02).
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			Favorable (Yes/No/No effect): Yes Statistical significance: Yes Outcome: Substance use School Related(truancy) Measure: Student self-reported truancy in the last year on a 5- point Likert scale Baseline Int (n=397): NR Comp (n=367): NR Follow-up (in months): 12 months Int (n=331): NR Comp (n=275): NR Absolute change: NR Relative change: NR Narrative results: Control group had significantly higher levels of truancy compared to the intervention group at 12 months ($F(1,374) = 5.47, p=0.02$). Favorable (Yes/No/No effect): Yes Statistical significance: Yes
Author Year: Newton 2022 (Newton 2020/ Newton 2018) Location: Australia Years for Study: September 2011 - 2015 (original) July 2017 – December 2018 (extended follow-up) Study Design: gRCT	Setting: School, Online Urbanicity: NR Recruitment: 190 schools approached, only 26 (17 private, 9 public) committed and 2190 students randomized. Of these, 1712 randomized into digital related arms or control group. Eligibility: all year 8 students in secondary schools in New South Wales and Victoria, Australia. For extended follow-up study students had to participate in original Sample size: Baseline 1712 (19 schools)	Intervention/program name: Climate Schools and Preventure (CAP) (combines Climate Schools: Alcohol and Cannabis and Preventure interventions) Substance(s) focused: <i>Climate Schools</i> - Alcohol and Cannabis <i>Preventure</i> - General Prevention Format: Computer, Internet/web-based Brief description of intervention and content:	Outcome: Prevalence of Alcohol Use Measure: Weekly drinking (full standard drink) in past 6 months (7-day) Climate schools (CS) vs control Baseline Int (n=576): 0.2% Comp (n=527): 0.2% Follow-up (in months): 84 months Int (n=296): 31.6% Comp (n=278): 42.5% Absolute change: -10.9 percentage points Relative change: -25.65%

CG Suitability: Greatest Quality of Execution (# of limitations): Fair (2 limitations)	Int 1185 CS – 576 (6 schools) CAP – 609 (6 schools) Control 527 (7 schools) <i>36-months post-baseline</i> Follow-up 73.7% (1261/1712) Int 72.1% (854/1185) CS 64.2% (370/576) CAP 79.5% (484/609) Control 77.2% (407/527) Loss to f/u 26.3% <i>84-months post-baseline</i> Follow-up 49.8% (852/1712) Int 48.4% (574/1185) CS 56.4% (296/576) CAP 48.8% (278/609) Control 54.8% (278/527) Loss to f/u 50.2% Study Population: Adolescents Age: 13.3 years (range: 13– 14) School level: High school Grade level(s): Year 8 Sex: 42.5% female, 57.5% male Race/ethnicity: Race NR; Country of Birth = Australia 85.7%, other English speaking 7.7%, non-English speaking 6.3%, missing 0.3% Other details: High Risk vs Low Risk = 43.2% vs 56.8% Study population: Parents and Caregivers	<i>CS (Climate Schools) - Alcohol and Cannabis</i> Universal prevention targeting use and related harms. All students received 12, 40-minute lessons: Term 1 - 6 lessons on alcohol, Term 3 - 6 on alcohol and cannabis. Includes a 20-minute online cartoon with a 20-minute teacher-led activity reinforcing content. <i>CAP (Climate Schools and Preventure)</i> Combines universal <i>Climate Schools</i> and selective <i>Preventure</i> prevention programs (for high-risk students based on Substance Use Risk Profile Scale personality subscale scores). Two 90-minute sessions (average group size ~5) led by trained facilitators focusing on psycho-educational strategies for coping with high-risk personality traits (negative thinking, anxiety sensitivity, impulsivity, sensation seeking). Include goal-setting exercises, cognitive behavioral model analysis of personal experiences, identification and challenging of problematic cognitive thoughts. Implementer(s) School involved in intervention or School not involved: Yes, in classroom Intervention duration: 8 months Intervention intensity: Number of sessions/modules: CS - 12, CAP- 14 Time per session: 40 mins per CS session, 40mins + 90 mins per CAP session	Narrative results: Not significant, but lower estimated odds of weekly alcohol use in comparison to control, with a relative reduction in odds of 83% holding mean baseline levels constant OR=0.13, 95%CI 0.01 1.22, ns; b = 2.04, 95%CI -4.27 to 0.20 Favorable (Yes/No/No effect): Yes Statistical significance: No Climate Schools and Preventure (CAP) vs control Baseline Int (n=609): 1.3% Comp (n=527): 0.2% Follow-up (in months): 84 months Int (n=278): 52.8% Comp (n=278): 42.5% Absolute change: +9.2 percentage points Relative change: -80.89% Narrative results: Not significant, but lower estimated odds of weekly alcohol use in comparison to control, with a relative reduction in odds of 36% holding mean baseline levels constant OR=0.64, 95%CI 0.13 - 3.05 NS b = -0.45, 95%CI -2.02 to 1.12 NS Favorable (Yes/No/No effect): Yes Statistical significance: No Outcome: Prevalence of Binge or Heavy Drinking Measure: Monthly binge drinking in past 6 months: 5 or more standard drinks on 1 occasion (%) (30-day) CS vs control Baseline Int (n=576): 1.2% Comp (n=527): 1.1% Follow-up (in months): 84 months
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	N/A Community characteristics: Private School: Overall: 74.7% CS: 56.1% CAP: 86.9% Control: 82.0%	Total hours: CS - 8hrs, CAP - 11hrs Booster: Yes Comparison group: Control group, Health education as usual including drug and alcohol education. Drug and alcohol education is mandatory in Year 8 health curriculum in Australia. Teachers provided details about the number and format of these lessons.	Int (n=296): 45.2% Comp (n=278): 59.8% Absolute change: -14.5 percentage points Relative change: -30.48% Narrative results: Significantly lower estimated odds of monthly alcohol use in comparison to control, with a relative reduction in odds of 88% holding mean baseline levels constant (OR= 0.12, 95%CI 0.02 0.96, p< 0.05; b = - 2.08, 95%CI -4.13 to -0.04) Favorable (Yes/No/No effect): Yes Statistical significance: Yes CAP vs control Baseline Int (n=609): 1.7 % Comp (n=527): 1.1% Follow-up (in months): 84 months Int (n=278): 68.7% Comp (n=278): 59.6% Absolute change: +8.5 percentage points Relative change: +14.26% Narrative results: No evidence that CAP group differed from the control in how the odds of monthly binge drinking changed (OR=1.13 95%CI 0.18 7.22, NS; b = 0.12, 95%CI = -1.73 to 1.98) Favorable (Yes/No/No effect): No Statistical significance: No Outcome: Prevalence of Cannabis Use Measure: Past 6-month cannabis use CS vs control Baseline Int (n=576): 5.6%
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			Comp (n=527): 6.1% Follow-up (in months): 36 months Int (n=NR): 11.8% Comp (n=NR): 10.8% Absolute change: +1.5 percentage points Relative change: +19.02% Narrative results: No significant differences in changes over time or probability of use between intervention groups at any follow-up occasion B = -0.12. The prevalence of these outcomes was lower than anticipated (OR 0.89, 95%CI = 0.40 to 1.97, p-value 0.77). Favorable (Yes/No/No effect): No Statistical significance: No CAP vs control Baseline Int (n=609): 6.3% Comp (n=527): 6.1% Follow-up (in months): 36 months Int (n=NR): 11.8% Comp (n=NR): 10.8% Absolute change: +0.8 percentage points Relative change: +5.79% Narrative results: B = -0.08 OR=0.93, 95%CI 0.42 to 2.03, p-value 0.85 Favorable (Yes/No/No effect): No Statistical significance: No Outcome: Development of Substance Use Disorders Measure: % of students with AUDIT-C scores >3, indicating potential alcohol use disorder CS vs control
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			Baseline Int (n=576): 2.8% Comp (n=526): 2.1% Follow-up (in months): 84 months Int (n=250): 68% Comp (n=245): 81.2% Absolute change: -13.9 percentage points Relative change: -37.9% Narrative results: Relative reduction in the odds of a potential alcohol use disorder by the 7-year follow-up of 96% for Climate Schools [OR=0.04, (CI: 0.01 to 0.27), p<0.05] Favorable (Yes/No/No effect): Yes Statistical significance: Yes CAP vs control Baseline Int (n=609): 3.6% Comp (n=526): 2.1% Follow-up (in months): 84 months Int (n=233): 83.7% Comp (n=245): 81.2% Absolute change: +1.0 percentage points Relative change: -39.87% Narrative results: No significant differences were observed for the CAP vs control group [OR=0.79, (CI: 0.12 to 5.31) NS] Favorable (Yes/No/No effect): Yes Statistical significance: No Outcome: Alcohol-Related Harms & Consequence Measure: % of students with any alcohol-related harms in the past 6 months using the Rutgers Alcohol Problem Index (23-items)
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			CS vs control Baseline Int (n=575): 11.3% Comp (n=526): 7.4% Follow-up (in months): 84 months Int (n=250): 72% Comp (n=244): 81.6% Absolute change: -13.5 percentage points Relative change: -42.21% Narrative results: Adjusted OR =0.25 (95% CI: 0.11 to 0.55), p < 0.05. Favorable (Yes/No/No effect): Yes Statistical significance: Yes CAP vs control Baseline Int (n=607): 12.7% Comp (n=526): 7.4% Follow-up (in months): 84 months Int (n=232): 77.6% Comp (n=244): 81.6% Absolute change: -9.3 percentage points Relative change: -44.58% Narrative results: Adjusted OR=0.33 (95% CI: 0.19 to 0.58), p < 0.05. Favorable (Yes/No/No effect): Yes Statistical significance: Yes Outcome: Cannabis-related Harms & Consequences Measure: Any of 6 cannabis-related school or social harms in the past 6 months CS vs control
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			Baseline Int (n=576): 2.7% Comp (n=527): 2.7% Follow-up (in months): 36 months Int (n=NR): 5.9% Comp (n=NR): 5.7% Absolute change: +0.2 percentage points Relative change: +3.5% Narrative results: OR=0.996 (95%CI 0.68 to 1.45), p=0.98. No significant difference between intervention and control groups, Favorable (Yes/No/No effect): No effect Statistical significance: No CAP vs control Baseline Int (n=609): 4.2% Comp (n=527): 2.7% Follow-up (in months): 36 months Int (n=NR): 6.1% Comp (n=NR): 5.7% Absolute change: -1.1 percentage points Relative change: -31.2% Narrative results: OR=0.759 (95%CI 0.53 to 1.08), p=0.12. Intervention group had a greater reduction in any harms experienced than controls. Favorable (Yes/No/No effect): Yes Statistical significance: No
Author Year: Norman 2008 Location: Canada Study Design: iRCT	Setting: School Urbanicity: NR Recruitment: Purposeful, stratified, and modified snowball sampling from 14 secondary schools (81 classes) in the	Intervention/program name: The Smoking Zine Substance(s) focused: Tobacco specific Format: Internet/web-based	Outcome: Prevalence of Tobacco Use Measure: Past 30-day smoking prevalence Baseline Int (n=108): NR Comp (n=103): NR

Years for Study: NR, but during school year CG Suitability: Greatest Quality of Execution (# of limitations): Good (1 limitations)	Greater Toronto Area. Schools based on size, location, and unique characteristics for diversity. Of 2210 eligible, 1528 consented, and 1402 (63.4%) provided demographics & risk profile data, but only 1389 provided baseline data and were randomized. Eligibility: students in grades 9-11 from 14 secondary schools in Toronto, Canada; regular access to the internet either at school or home. Sample size: Baseline 1389 Int 661 Non-Smokers 553 Smokers 108 Control 728 Non-Smokers 625 Smokers 103 <i>6-months post-baseline</i> Follow-up 86.5% (1201/1389) Int 84.6% (559/661) Non-Smokers 87.3% (483/553) Smokers 70.4% (76/108) Control 88.2% (642/728) Non-Smokers 88.8% (555/625) Smokers 84.5% (87/103) Loss to f/u 13.0% Study Population: Adolescents Age: years (range: NR) School level: High school Grade level(s): 9th - 11th	Brief description of intervention and content: Interactive 5-stage website complemented by a single 60-minute class session, a paper-based journal (for recording assessment scores from the website), small group motivational interviewing (in a classroom session), interactive quizzes, self-assessments with tailored feedback, and tailored e-mails. Website: http://www.smokingzine.org Implementer(s) School involved in intervention or School not involved: Yes in classroom Intervention duration: 6 months Intervention intensity: Number of sessions/modules: 1 Time per session: 1 Total hours: 1 Booster: Yes Comparison group: Control group Interactive task during a single classroom session with e-mail follow-up. Group Activity: Evaluated quality of various Web sites on climate change using a tool developed by investigators. Aimed at engaging participants similarly without influencing intervention outcomes. Materials & Follow-Up: Used journals identical in appearance to those of the	Follow-up (in months): 6 months Int (n=76): NR Comp (n=87): NR Absolute change: NA Relative change: NA Narrative results: No effect on cigarette use of smokers at baseline. $b=0.237$ ($SE=.203$), $OR=1.267$; interaction not statistically significant. Favorable (Yes/No/No effect): No effect Statistical significance: No Outcome: Tobacco Use Initiation Measure: Lifetime ever use among non-smokers Baseline (Non-smokers) Int (n=553): NR Comp (n=625): NR Follow-up (in months): 6 months (Non-smokers) Int (n=483): NR Comp (n=555): NR Absolute change: NA Relative change: NA Narrative results: Intervention nonsmoker participants were less likely to adopt heavy smoking behavior than controls at all follow-ups ($b=0.242$ ($SE=.111$), $OR=0.785$) indicates that the intervention has a protective effect over time on nonsmokers' likelihood of starting smoking, Significant at $p < 0.05$ Favorable (Yes/No/No effect): Yes Statistical significance: Yes
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	(9th: 39%, 10th 30%, 11th 31%) Sex: 46.3% female, 53.7% male Race/ethnicity: Asian (East 16%, Central Asian 12%) Eastern European 16% More than one cultural group: 17% Study population: Parents and Caregivers N/A Community characteristics: N/A	intervention group for task scoring. Received generic monthly e-mails about evaluating online information.	
Author Year: Paz Castro 2022 Location: Switzerland Years for Study: March 2019 - September 2020 Study Design: gRCT CG Suitability: Greatest Quality of Execution (# of limitations): Fair (3 limitations)	Setting: School, Online Urbanicity: NR Recruitment: Secondary and upper secondary schools in the Cantons of Zurich and Argovia; 1759 students invited (89 classes), 1,473 (83.7%) were randomized Eligibility: Students at least 14 years with a mobile phone. If under the age of 15 years having informed parental consent Sample size: Baseline 1473 (89 classes) Int 750 (44 classes) Control 723 (45 classes) <i>18-months post-baseline</i> Follow-up 83.6% (1232/1473) Int 80.5% (604/750) Control 86.9% (628/723) Loss to f/u 16.4% Study Population: Adolescents (Int)	Intervention/program name: SmartCoach Substance(s) focused: General Prevention Format: Smartphone, Internet/web-based, Text Messaging Brief description of intervention and content: Web-based feedback provided immediately after baseline assessment completed within the school classroom. Participants received 2 to 4 personalized text messages (generated and sent via fully automated system) weekly to their mobile phones. Content: interactive features, i.e., quiz questions, tasks to create individually tailored if-then behavior plans based on intentions, and message contests. Weeks 1-7: Self-management Skills - Topics included coping with stress, emotional self-regulation, and managing anger/frustration.	Outcome: Prevalence of Alcohol Binge or Heavy Drinking Measure: Student self-reported problem drinking in the past 30 days (score ≥ 5 on Alcohol Use Disorders Identification Test). Baseline Int (n=750): 15.2% Comp (n=723): 20.7% Follow-up (in months): 18 months post baseline Int (n=750): 24.0% Comp (n=723): 28.6% Absolute change: +0.9 percentage points Relative change: +14.3% Narrative results: OR= 0.84 (95% CI 0.61, 1.17); p=0.32 coefficient = -0.17. Student self-reported problem drinking increased slightly more in the intervention group than in the comparison group over 18m. Favorable (Yes/No/No effect): No Statistical significance: No

	Age: 15.4 years (range: 14 – 17) School level: secondary and upper secondary schools Grade level(s): NR Sex: 56.4% female, 43.6% male Race/ethnicity: Race NR, Ethnicity Born outside Switzerland One parent 23.1% Both parents 25.1% No immigration background 51.9% Study population: Parents and Caregivers: N/A Community characteristics: N/A	Weeks 8-17: Social Skills - Emphasized skills such as making/refusing unreasonable requests and socializing with new people. Weeks 18-22: Substance Use Resistance Skills - Concentrated on recognizing/resisting media influences, correcting substance use misconceptions and understanding the role of self-management/social skills in substance avoidance. Implementer(s) School involved in intervention or School not involved: No, only for assessments Intervention duration: 5.5 months Intervention intensity: 2-4 texts per week Number of sessions/modules: 3 Time per session: NR Total hours: NR Booster: No Comparison group: Control group Assessment only, received no interventions.	Outcome: Frequency of Alcohol Use (Quantity) Measure: Student self-reported quantity of alcohol use past 30 days (units not reported in paper) Baseline Int (n=750): 5.9 Comp (n=723): 7.5 Follow-up (in months): 18 months post baseline Int (n=750): 10.4 Comp (n=723): 9.6 Absolute change: +2.4 units (NR) Relative change: +37.71 Narrative results: Cohen's d =0.12 (95%CI 0.01, 0.22) p=0.39 Self-reported quantity of alcohol consumed in the past 30 days was higher among intervention students at 18m follow-up Favorable (Yes/No/No effect): No Statistical significance: No Outcome: Prevalence of Cannabis Use Measure: Student self-reported cannabis use in the past 30 days Baseline: March 2019-March 2020 Int (n=750): 14.1% Comp (n=723): 14.2% Follow-up (in months): 18 months post baseline Int (n=750): 16.4% Comp (n=723): 24.3% Absolute change: -7.8 percentage points Relative change: -32.0% Narrative results: OR=0.55 (95%CI 0.39, 0.76) p<0.001; coefficient -0.60 Intervention group students self-reported cannabis use in the past 30
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			days at a significantly lower rate than control group students. Favorable (Yes/No/No effect): Yes Statistical significance: Yes Outcome: Frequency of Cannabis Use Measure: Student self-reported number of times used cannabis use in the past 30 days Baseline: Int (n=750): 0.77 times Comp (n=723): 0.78 times Follow-up (in months): 18 months post baseline Int (n=750): 0.89 times Comp (n=723): 1.68 times Absolute change: -0.77 times in past 30 days Relative change: -46.3% Narrative results: Cohen's d = -0.19 (95%CI -0.29, -0.09) p<0.001. Intervention group students self-reported times used cannabis in the past 30 days at a significantly lower rate than control group students. Favorable (Yes/No/No effect): Yes Statistical significance: Yes Outcome: Prevalence of Tobacco use Measure: Student self-reported tobacco smoking in the past 30 days Baseline: March 2019-March 2020 Int (n=750): 12.1% Comp (n=723): 15.1% Follow-up (in months): 18 months post baseline Int (n=750): 18.4% Comp (n=723): 25.3%
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			Absolute change: -3.9 percentage points Relative change: -9.2% Narrative results: OR=0.67 (95%CI 0.47, 0.96); p=0.03; coefficient =-0.39. Student self-reported smoking was significantly lower among intervention groups than controls at 18 months. Favorable (Yes/No/No effect): Yes Statistical significance: Yes Outcome: Frequency of Tobacco use (Quantity) Measure: Student self-reported quantity of cigarettes smoked in the past 30 days, M (SD) Baseline: Int (n=750): 5.3 cigarettes Comp (n=723): 7.9 cigarettes Follow-up (in months): 18 months post baseline Int (n=750): 12.3 cigarettes Comp (n=723): 16.8 cigarettes Absolute change: -1.9 cigarettes in the past 30 days; Relative change: +9.1% Narrative results: Student self-reported number of cigarettes smoked in the past 30 days was lower among intervention groups than controls at 18 months, p=0.36. Favorable (Yes/No/No effect): Yes Statistical significance: No Outcome: Morbidity-Related (Well-being) Measure: Student self-reported well-being based on Well-Being-Index of the WHO (scores range from 0 (low well-being) to 100 (high well being)
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			Baseline: Int (n=750): 52.9 score points Comp (n=723): 51.6 score points Follow-up (in months): 18 months post baseline Int (n=750): 52.5 score points Comp (n=723): 51.7 score points Absolute change: -0.5 scale points Relative change: NA Narratives results: Cohen's d = -0.03 (95%CI -0.13, 0.07) p=0.75. No significant difference between intervention and control groups. Favorable (Yes/No/No effect): No effect Statistical significance: No Outcome: Social skills outcome was evaluated but was not significantly different at 18 months
Author Year: Schinke 2009a Location: USA; New York City, eastern New Jersey, southern Connecticut Years for Study: 2006-2009 Study Design: iRCT CG Suitability: Greatest Quality of Execution (# of limitations): Fair (3 limitations)	Setting: Home/Family, Online Urbanicity: NR (presumed mixed) Recruitment: Postings on craigslist.org and advertisements in newspapers, posted on buses, and broadcast on a popular New York City radio station, 1702 interested, 916 (53.8%) eligible and enrolled Eligibility: English speaking mother-daughter dyads; girls 11 - 13 years of age and mothers in study region; and have private access to personal computer; "mothers" included women who assumed the mother role - e.g., aunts, grandmothers, stepmothers, and legal guardians.	Intervention name: NR Substance(s) focused: General prevention Format: Computer, CD-ROM, Internet/web-based Brief description of interventions and content: Computer-based intervention, informed by family interaction theory. Content: fostering parent-child attachment, supervision, and support to reduce risk factors and build protective factors. Exercises taught dyads the value of listening to each other, spending time together, understanding one another's personality, negotiating mutually agreeable decisions to problems, doing personal favors for one	Outcome: Frequency of Alcohol Use Measure: Instances of alcohol use in last 30 days Baseline Int (n=458): 0.14 (SD 0.2) Comp (n=458): 0.18 (SD 0.3) Follow-up: 24 months Int (n=415): 0.17 (SD 0.3) Comp (n=413): 0.33 (SD 0.7) Absolute change: -0.12 instances in 30 days Relative change: -33.8% Narrative results: F =5.20. p<0.006 Favorable (Yes/No/No effect): Yes Statistical significance: Yes Outcome: Frequency of Tobacco Use Measure: Instances of cigarette use in last 30 days

	Sample size: Baseline 916 dyads Int 458 Control 458 <i>24-months post-baseline</i> Follow-up: 90.4% (828/916) Int 90.6% (415/458) Control 90.2% (413/458) Loss to f/u 9.6% Study Population: Adolescents Age: mean 12.76 years (Range: 11 – 13) School level: Middle school Grade level(s): NR Sex: 100% female Race/ethnicity: Black 40.6% White 23.2% Asian 10.8% Other race 1.7% Ethnicity Latina 23.1% Other details: Grades A's 9.1% B's 42.3% C's 13.4% D's and below 5.2% Study population: Parents (mothers) and Caregivers Age: mean 39.9 years Sex: 100% female Race/ethnicity: NR Education: <High school 6.3%	another, and giving each other praise and compliments. Implementer(s): NA School involved in intervention or School not involved: not involved Intervention duration: 9 weeks plus 2 annual review booster modules Intervention intensity: weekly Number of sessions/modules: 11 (9 + 2 boosters) Time per session: 45 minutes Total hours: 8.25 hours Booster: Yes Comparison group: Control group, assessment test only, no intervention.	Baseline Int (n=458): 1.02 (SD 0.2) Comp (n=458): 1.04 (SD 0.3) Follow-up: 24 months Int (n=415): 1.05 (SD 0.5) Comp (n=413): 1.39 (SD 3.6) Absolute change: -0.32 instances in 30 days Relative change: -22.9% Narrative results: F=1.11 NS Favorable (Yes/No/No effect): Yes Statistical significance: No Outcome: Frequency of Cannabis Use Measure: Instances of marijuana use in last 30 days Baseline Int (n=458): 0.08 (SD 0.0) Comp (n=458): 0.09 (SD 0.0) Follow-up: 24 months Int (n=415): 0.1 (SD 0.1) Comp (n=413): 0.2 (SD 0.7) Absolute change: -0.09 instances in 30 days Relative change: -43.75% Narrative results: F =4.12 p<0.016 Favorable (Yes/No/No effect): Yes Statistical significance: Yes Outcome: Frequency of Prescription Drug Misuse Measure: Instances of prescription drug use in last 30 days Baseline Int (n=458): 0.12 (SD 0.2) Comp (n=458): 0.09 (SD 0.1)
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	High school 9.1% Some college 28.3% A.A. or B.A. degree 42.6% Graduate degree 13.7% Employment: NR Income: NR Marital status: Family status Single parent: 43.7% Two parents: 56.3% Community characteristics: NR		Follow-up: 24 months Int (n=415): 0.09 (SD 0.1) Comp (n=413): 0.11 (SD 0.2) Absolute change: -0.05 instances in 30 days Relative change: -38.7% Narrative results: F=3.58 p<0.03 Favorable (Yes/No/No effect): Yes Statistical significance: Yes Outcome: Frequency of Illicit Drug Use (Inhalants use) Measure: Mean number of times inhalants were used in the last month (on a 5-point scale) 30 days Baseline Int (n=458): 0.04 (SD 0.3) Comp (n=458): 0.01 (SD 0.1) Follow-up: 24 months Int (n=415): 0.02 (SD 0.1) Comp (n=413): 0.03 (SD 0.2) Absolute change: -0.04 scale points in 30 days Relative change: NA Narrative results: F =3.72 p<0.024. At 2-year follow-up and relative to control-arm girls, intervention-arm girls reported less 30-day past use of inhalants. Favorable (Yes/No/No effect): Yes Statistical significance: Yes
Author Year: Schinke 2009b Location: USA; New York, New Jersey, Connecticut	Setting: Home Urbanicity: NR (presumed mixed) Recruitment: advertisements posted online, in local newspapers, on buses, in subway	Intervention name: NR Substance(s) focused: Smoking (cigarettes), drinking (alcohol), illicit drug use Format: Computer-based	Outcome: Frequency of Alcohol Use Measure: Instances of alcohol use in last 30 days Baseline Int (n=252): 0.15 (SD 0.17) Comp (n=339): 0.16 (SD 0.31) Follow-up: 12 months

Years for Study: 2006-08 Study Design: iRCT CG Suitability: Greatest Quality of Execution (# of limitations): Fair (3 limitations)	trains, and broadcast the radio station, 1702 interested, 916 (53.8%) eligible and enrolled Eligibility: English speaking mother-daughter dyads; girls 11 - 13 years of age and mothers in study region; and have private access to personal computer; “mothers” included women who assumed the mother role - e.g., aunts, grandmothers, stepmothers, and legal guardians. Sample size: Baseline 591 dyads Int 252 Control 339 <i>12-months post-baseline</i> Follow-up: 90.0% (532/591) Int 81.3% (205/252) Control 96.5% (327/339) Loss to f/u: 10.0% Study Population: Adolescents (Int) Age: mean 12.64 years (Range: 11-13) School level: Middle school Grade level(s): NR Sex: 100% female Race/ethnicity: Black 38.9% White 38.9% Latina 22.2% Study population: Parents (mothers) and Caregivers (Int)	Brief description of interventions and content: Informed by family interaction theory, the program focused on fostering parent-child attachment, supervision, and support to reduce risk factors and build protective factors associated with the prevention of smoking, drinking, and illicit drug taking by adolescent girls. Implementer(s): <i>School involved in intervention or School not involved:</i> not involved Intervention duration: 9 weeks Intervention intensity: weekly Number of sessions/modules: 9 Time per session: 45 minutes Total hours: 6.75 hours Booster: No Additional components: \$20-\$30 incentives for both groups Comparison group: Control group, assessment test only, no intervention	Int (n=205): 0.17 (SD 0.32) Comp (n=327): 0.31 (SD 0.61) Absolute change: -0.13 instances in 30 days Relative change: -41.5% Narrative results: Wald X2 =6.11 p<0.05 Favorable (Yes/No/No effect): Yes Statistical significance: Yes Outcome: Frequency of Tobacco Use Measure: Instances of cigarette use in last 30 days Baseline Int (n=252): 0.03 (SD 0.24) Comp (n=339): 0.03 (SD 0.27) Follow-up: 12 months Int (n=205): 0.05 (SD 0.5) Comp (n=327): 0.11 (SD 1.08) Absolute change: -0.06 instances in 30 days Relative change: -54.5% Narrative results: Wald X2 =0.73, p-value not reported Favorable (Yes/No/No effect): Yes Statistical significance: NR Outcome: Frequency of Cannabis Use Measure: Instances of marijuana use in last 30 days Baseline Int (n=252): 0.08 (SD 0.01) Comp (n=339): 0.08 (SD 0.02) Follow-up: 12 months Int (n=205): 0.1 (SD 0.13) Comp (n=327): 0.2 (SD 0.65) Absolute change: -0.1 instances in 30 days
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	Age: mean 41.07 years Sex: 100% female Marital status: Single parent: 39.7% Two parent: 60.3% Race/ethnicity: NR Education: NR Employment: NR Income: NR Other: NR Community characteristics: NR		Relative change: -50.0% Narrative results: Wald X2 =6.75 p<0.01 Favorable:(Yes/No/No effect): Yes Statistical significance: Yes Outcome: Frequency of Prescription Drug Misuse Measure: Instances of prescription drug use in last 30 days Baseline Int (n=252): 0.21 (SD 0.96) Comp (n=339): 0.10 (SD 0.47) Follow-up: 12 months Int (n=205): 0.06 (SD 0.46) Comp (n=327): 0.17 (SD 1.58) Absolute change: -0.22 instances in 30 days Relative change: -83.2% Narrative results: Wald X2 =12.45 p<0.0001 Favorable (Yes/No/No effect): Yes Statistical significance: Yes
Author Year: Schwartz 2014 Location: Canada Study period: fall 2009 – fall 2012 Study Design: gRCT CG Suitability: Greatest Quality of Execution (# of limitations):	Setting: School, Online, Home/Family Urbanicity: NR Recruitment: students from 48 secondary schools in the fall of 2009 Eligibility: nonsmoking girls, aged 13 to 15 years, who participated in BASUS study. Sample size: Baseline 745 Int 310 Control 435 <i>6-months post-baseline</i> Follow-up 83.0% (618/745)	Intervention/program name: Supporting Tailored Approaches to Reducing Tobacco (START): Decreasing Breast Cancer Incidence Substance(s) focused: Tobacco specific Format: Computer, Internet/web-based Brief description of intervention and content: Images of 4 girls playfully holding bras to attract attention. Sample messaging: "Smoking affects more than your lungs" (followed by Cigarette smoke imagery) "even secondhand smoke, puts	Outcome: Tobacco Use Initiation Measure: Study adolescent nonsmoking girls self-reporting "tried smoking (cigarettes or roll-your-own)" on substance use survey Baseline: Int (n=239): 0% by definition Comp (n=376): 0% by definition Follow-up : 6 months intervention/baseline Int (n=239): 3.8% Comp (n=376): 3.5% Absolute change: +0.3 percentage points Relative change: +8.6%

Fair (3 limitations)	Int 78.1% (242/310) Control 86.4% (376/435) Loss to f/u 17.0% Study Population: Adolescents Age: 14.0 years (range: 13 – 15; ages 13 (4%) 14 (34.5%) 15 (61.5%)) School level: High school Grade level(s): NR Sex: 100% female Race/ethnicity: Aboriginal 8.1% Non-Aboriginal 91.8% Other Family income Below average 5.4% Average 80.0% Above average 14.7% Study population: Parents and Caregivers Smoking status Smoker: 25.1% All other demographics NR Community characteristics: NR	girls at risk for breast cancer at an early age.” Afterwards, suggestions for action such as “Avoid places where you and your friends are exposed to secondhand smoke. If you smoke, think about quitting. Do it for yourself and all the girls you know.” Implementer(s) School involved in intervention or School not involved: Posters included in intervention had to be placed around school Intervention duration: 1 day Intervention intensity: Number of sessions/modules: 1 Time per session: NR Total hours: NR Booster: No Comparison group: Control group, received a standard message from Health Canada’s online library of health labels and warnings for cigarette tobacco that cigarette smoke contains carcinogenic agents.	Narrative results: Unadjusted relative risk =1.14 (95%CI 0.48, 2.69). Favorable (Yes/No/No effect): No Statistical significance: No, p-value not reported
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Author Year: Schwinn 2010a Related papers: Schinke 2010; Schinke 2004 Location: USA; New York City, New Jersey, Delaware Years for Study: NR, but lasted 7 years Study Design: gRCT CG Suitability: Greatest Quality of Execution (# of limitations): Fair (2 limitations)	Setting: Home/Family, Community Urbanicity: Urban, suburban, rural Recruitment: 43 New York City, New Jersey and Delaware community agencies offering such services as recreation, after-school programs, and social services. Randomized by community. Eligibility: English speaking, consenting adolescents aged 10-12 years at community agencies with parental consent Sample size: Baseline 513 Adolescents only 188 Adolescents-Parent 162 Control 163 <i>84-months post-baseline</i> Follow-up 3 years: overall NR Adolescents only 92.1% Adolescents-Parent arm 88.2% Control 93.3% 6 years: 80.5% (413/513) Adolescents only 80.9% (152/188) Adolescents-Parent 80.2% (130/162) Control 80.4% (131/163) 7 years 79.7% (409/513) Adolescents only 76.1% (143/188) Adolescents-Parent 78.4% (127/162) Control 97.2% (139/143)	Intervention/program name: NR Substance(s) focused: Alcohol specific Format: Computer, CD-ROM, internet/web-based Brief description of interventions and content: Computer-based intervention <i>Adolescent components</i> Program covered skills and practices for goal setting, coping, peer pressure, refusal skills, norm correcting, self-efficacy, problem solving, decision making, effective communication and time management. Annual Boosters: 5, 30-minute computer (CD or online) module <i>Parent components</i> Viewed videotape at home, sessions provided instruction on how youths' parents could enhance youth intervention. For example, discussions between parents and youths of skills that youths were learning, helping youths apply programmatic content, supporting youths when they avoided substance use and engaged in health-promoting activities. Annual boosters: CD or digital audio recordings via iPod with content and activities. Also, print materials in English and Spanish including 2 newsletters for parents and one 2-hour workshop.	Note: 7-year follow-up results combined intervention arms for significance testing vs control, but reported raw data separately in Table 2 Outcome: Alcohol Use Measure: Self-reported (mean) number of times of use in the previous 30 days Digital+ arm Baseline Int (n=162): 0.07 (SD 0.5) Comp (n=163): 0.05 (SD 0.3) Follow-up: 84 months (7-year f/u) Int (n=127): 2.51 (SE 0.6) Comp (n=139): 4.25 (SE 0.6) Absolute change: -1.76 instances in 30 days Relative change: -57.8% Narrative results: Relative to youths assigned to the control arm, those who participated in the prevention program (digital + intervention arm) reported fewer instances in the past 30-days of alcohol consumption. Favorable (Yes/No/No effect): Yes Statistical significance: NR Digital only arm Baseline Int (n=NR): 0.05 Comp (n=NR): 0.05 Follow-up: 84m Int (n=NR): 2.77 Comp (n=NR): 4.25 Absolute change: -1.48 instances in 30 days Relative change: -34.82
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	Loss to f/u 3 years: overall NR 6 years: 19.5% 7 years: 20.3% Study Population: Adolescents (ages 10-17 years) Age: 11.5 yrs (Range: 10-12) School level: Middle school Grade level(s): NR Sex: 51.4% female; 48.6% male Race/ethnicity: Black 54% White 11% Asian or other 5% Hispanic 30% Study population: Parents and Caregivers Other details: Spanish preferred language 11.5% All other demographics NR Community characteristics: NR	Implementer(s): <i>School involved in intervention or School not involved:</i> not involved Intervention duration: NR, but 6-7 years Intervention intensity: <i>Adolescents only:</i> Number of sessions/modules: 10 Time per session: 45 mins Total hours: 10 hours Booster: Yes <i>Adolescents + parents/caregivers:</i> Number of sessions/modules: 11 Time per session: 30-45 mins (+ a 2-hr parent workshop) Total hours: ~12 hours Booster: Yes Comparison group: Control group Assessment only, no intervention	Narrative results: Relative to youths assigned to the control arm, those who participated in the digital only (CD) arm reported fewer instances in the past 30 days of alcohol consumption. Favorable (Yes/No/No effect): Yes Statistical significance: NR Outcome: Frequency of Alcohol Binge or Heavy Drinking Measure: Mean number of times of heavy drinking in the past month (5 drinks in row) Self-reported instances of >5 alcohol drinks in a row in the previous 30 days. Digital+ arm Baseline Int (n=162): 0.0 (SD 0.0) Comp (n=163): 0.03 (SD 0.2) Follow-up: 84 months (7-year f/u) Int (n=127): 0.76 (SE 0.5) Comp (n=139): 2.15 (SE 0.5) Absolute change: -1.36 instances in 30 days Relative change: -63.2% Narrative results: Relative to youths assigned to the control arm, those who participated in the digital+ arm reported fewer instances in the past 30-days of binge drinking. Favorable (Yes/No/No effect): Yes Statistical significance: NR Digital only arm Baseline Int (n=): 0.09 Comp (n=): 0.03
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			Follow-up: 84 months (7-year f/u) Int (n=): 1.05 Comp (n=): 2.15 Absolute change: -1.16 instances in 30 days Relative change: -83.72% Narrative results: Relative to youths assigned to the control arm, those who participated in the digital only (CD) arm reported fewer instances in the past 30 days of alcohol consumption. Favorable (Yes/No/No effect): Yes Statistical significance: NR Outcome: Frequency of Marijuana Use Measure: Self-reported (mean) number of times of cannabis use in the previous 30 days Digital+ arm Baseline Int (n=162): 0.04 (SD 0.5) Comp (n=163): 0.04 (SD 0.5) Follow-up: 84 months Int (n=127): 4.68 (SE 1.1) Comp (n=139): 3.59 (SE 1.0) Absolute change: +1.09 instances in 30 days Relative change: +30.4% Narrative results: Marijuana use in the previous 30 days increased in the digital+ intervention arm youth compared to control youth Favorable (Yes/No/No effect): No Statistical significance: NR Digital only arm Baseline Int (n=NR): 0.08
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			Comp (n=NR): 0.05 Follow-up: 84 months Int (n=NR): 3.35 Comp (n=NR): 3.59 Absolute change: -0.27 instances in 30 days Relative change: -41.68% Narrative results: Marijuana use in the previous 30 days decreased in digital only arm compared to control youth. Favorable (Yes/No/No effect): Yes Statistical significance: NR Outcome: Frequency of Tobacco Use (Cigarettes) Measure: Self-reported (mean) number of times of use in the previous 30 days Digital+ arm Baseline Int (n=162): 0.16 (SD 2.0) Comp (n=163): 0.05 (SD 0.5) Follow-up: 84 months Int (n=127): 7.82 (SE 4.4) Comp (n=139): 20.79 (SE 4.2) Absolute change: -13.08 instances in 30 days Relative change: -88.2% Narrative results: Relative to youths assigned to the control arm, those who participated in the prevention program (Digital + arm) reported fewer instances of cigarette smoking. Favorable (Yes/No/No effect): Yes Statistical significance: NR Digital only arm Baseline
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			Int (n=NR): 0.08 Comp (n=NR): 0.05 Follow-up: 84 months Int (n=NR): 7.4 Comp (n=NR): 20.79 Absolute change: -13.42 instances in 30 days Relative change: -77.8% Narrative results: Seven years following postintervention testing and relative to control-arm youths - youths in digital only (CD) arm reported less cigarette use. Favorable (Yes/No/No effect): Yes Statistical significance: NR
Author Year: Schwinn 2010b Location: USA and Canada Years for Study: NR Study Design: iRCT CG Suitability: Greatest Quality of Execution (# of limitations): Fair (3 limitations)	Setting: Online Urbanicity: Urban, suburban, rural Recruitment: across 42 U.S. states and 4 Canadian provinces through Kiwibox.com, an adolescent -oriented website. Solicitation emails to 13- and 14-year-old registered users of the site; 450 interested, 236 eligible and randomized. Eligibility: 7th - 9th graders registered users of the site. Sample size: Baseline 236 Int 118 Control 118 <i>6-months post-intervention</i> Follow-up 91.0% (total sample) Loss to f/u 9.0%	Intervention/program name: RealTeen Substance(s) focused: General Prevention Format: Computer, Internet/web-based Brief description of intervention and content: Animated character guides through content and exercises. Interactive Content: participants choose public or private sharing of responses to session questions through blogging, pen pals, forums, private diaries. Topics include goal setting, decision making, stress management, puberty, self-esteem, assertiveness, communication, media literacy, peer pressure, and drug education. Homepage Features: engaging features such as news feeds, horoscopes, beauty tips, quotes of the day, fortunes, and personal blogs, and access to pen pals and a chat forum for interactive communication.	Outcome: Frequency of Alcohol Use Measure: How many occasions girls used alcohol in the past 30 days. Response options ranged from 0 to 40. Baseline Int (n=118): NR Comp (n=118): NR Follow-up (in months): 6 months Int (n=NR): 0.45 Comp (n=NR): 1.08 Absolute change: -0.63 occasions in the last 30 days Relative change: -58.33% Narrative results: Intervention group reported an average of 0.45 occasions of alcohol use in the past month, compared to 1.08 occasions for the control group. Repeated measures ANOVA showed significant interactions over time ($F(2,380) = 6.00$ $p < 0.05$). Estimated effect sizes for reduction (adjusted means scores) was 0.20. Favorable (Yes/No/No effect): Yes

	Study Population: Adolescents Age: years (range: 13 – 14) School level: Middle, High school Grade level(s): 7th – 9th (60% in 9th) Sex: 100% female Race/ethnicity: Black or African American 16.5% Asian 6.8% White 60.6% Other race 8.9% Ethnicity Hispanic or Latino 7.2% Other details: Academic performance: average letter grade between A - B Living arrangement: Mother and father 53.0% Two-parent stepfamily 15.3% Single parent 25.4% Grandparents 2.1% Foster or other 4.2% Study population: Parents and Caregivers NR Community characteristics: School Type: Public 89.4% Private, not religious 3.8% Private, religious 5.5% Don't know 1.3%	Implementer(s) School involved in intervention or School not involved: not involved Intervention duration: 1.5 months Intervention intensity: 2 sessions per week Number of sessions/modules: 12 Time per session: 25 mins Total hours: 5 hrs Booster: Yes Comparison group: Control Group, Assessment only, no intervention	Statistical significance: Yes Outcome: Frequency of Cannabis Use Measure: How many occasions girls used cannabis in the past 30 days. Response options ranged from 0 to 40. Baseline Int (n=118): NR Comp (n=118): NR Follow-up (in months): 6 months Int (n=NR): 0.04 Comp (n=NR): 0.42 Absolute change: -0.38 occasions in the last 30 days Relative change: -90.4% Narrative results: The intervention group reported significantly less marijuana use compared to the control group. Repeated measures ANOVA showed significant interactions over time ($F(2,380) = 4.20$ $p < 0.05$). Estimated effect sizes for reduction (adjusted means scores) was 0.20. Favorable (Yes/No/No effect): Yes Statistical significance: Yes Outcome: Frequency of Tobacco Use Measure: How many occasions girls used tobacco in the past 30 days. Response options ranged from 0 to 40. Baseline Int (n=118): NR Comp (n=118): NR Follow-up (in months): 6 months Int (n=NR): +1.57
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			Comp (n=NR): +1.39 Absolute change: +0.18 occasions in the last 30 days Relative change: +12.95% Narrative results: There was no significant difference between groups for cigarette use; both groups had similar frequencies (intervention mean = 1.57, control mean = 1.39). Intervention did not have an impact on cigarette smoking behavior, $p = 0.82$. Favorable (Yes/No/No effect): No effect Statistical significance: No Outcome: Frequency of Illicit or Other Substances as a Combined Measure (Polydrug) Measure: Mean polydrug use score (cigarettes, marijuana, cocaine, inhalants, ecstasy, methamphetamine use) in last 30 days. Baseline Int (n=118): NR Comp (n=118): NR Follow-up (in months): 6 months post-intervention Int (n=NR): 0.13 score points Comp (n=NR): 0.38 score points Absolute change: -0.25 scale points Relative change: NA Narrative results: Intervention group girls had lower 30-day rates of polydrug use compared to girls in the control group ($F=6.85$, $p<0.05$) Favorable (Yes/No/No effect): Yes Statistical significance: Yes Outcome: Frequency of Illicit or Other Substances as a Combined Measure
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			Measure: Mean total drug use score (drugs listed above for polydrug use + alcohol use in the last 30 days) Baseline Int (n=118): NR Comp (n=118): NR Follow-up (in months): 6 months post-intervention Int (n=NR): 0.33 score points Comp (n=NR): 0.68 score points Absolute change: -0.35 scale points Relative change: NA Narrative results: Intervention group girls had lower 30-day rates of total drug use compared to girls in the control group (F=7.70, p<0.05). Favorable (Yes/No/No effect): Yes Statistical significance: Yes
Author Year: Schwinn 2015 Location: USA Years for Study: 2014 Study Design: iRCT CG Suitability: Greatest Quality of Execution (# of limitations): Fair (4 limitations)	Setting: Online Urbanicity: Urban, suburban, rural Recruitment: Via 6 Facebook ads running for 9 days during spring of 2014. Eligibility: 15 or 16 years, U.S. resident, identifying as gay, lesbian, bisexual, transgender, or questioning. with access to a personal computer. Must also correctly answer a five-question quiz on study procedures. Sample size: Baseline 236 Int 119 Control 117	Intervention/program name: No Name Substance(s) focused: General Prevention Format: Computer, Internet/web-based Brief description of intervention and content: an animated narrator guiding through content and scenarios including games, role-playing, and writing activities based on social competency skill-building and minority stress theory. Session 1: Identifying and managing stress. Session 2: Five-step decision-making guide. Session 3: Drug use rates and refusal skills.	Outcome: Frequency of Alcohol Use Measure: Alcohol scores range from 0 to 8 times in the past 30 days Baseline Int (n=119): 1.11 Comp (n=117): 0.73 Follow-up (in months): 3 months Int (n=97): 1.29 Comp (n=103): 1.1 Absolute change: -0.19 times in past 30 days Relative change: -22.8% Narrative results: No significant differences, t.(198) = 0.66. Favorable (Yes/No/No effect): Yes Statistical significance: No

	<i>3-months post-intervention</i> Follow-up 84.7% (200/236) Int 81.5 % (97/119) Control 88.3% (103/117) Loss to f/u 15.3% Study Population: Adolescents (Int) Age: 16.1 years (range: 15 – 16) School level: High school Grade level(s): NR Sex: 49.6% female, 50.4% male, 18.3% Queer/fluid/other Sexual attractions: Same sex 39.4% Both sexes 49.5% Opposite sex 5.5% Not sure 5.6% Race/ethnicity: Black or African American 7.3% Asian 6.4% White 66.1% Other race 7.4% Ethnicity Hispanic 12.80% Study population: Parents and Caregivers N/A Community characteristics: City type Urban 26.7% Suburban 48.6% Rural 24.7%	Implementer(s) School involved in intervention or School not involved: not involved Intervention duration: 1 month Intervention intensity: Number of sessions/modules: 3 Time per session: 14 mins Total hours: 42 mins Booster: No Comparison group: Control group, no details	Outcome: Frequency of Cannabis Use Measure: Cannabis scores range from 0 to 8 times in the past 30 days. Baseline Int (n=119): 1.72 Comp (n=117): 1.88 Follow-up (in months): 3 months Int (n=97): 1.63 Comp (n=103): 1.74 Absolute change: +0.05 times in past 30 days Relative change: +2.39% Narrative results: No significant differences, t.(198) = 0.41. Favorable (Yes/No/No effect): No effect Statistical significance: No Outcome: Frequency of Tobacco use Measure: Tobacco scores range from 0 to 8 times in the past 30 days. Baseline Int (n=119): 0.87 Comp (n=117): 0.94 Follow-up (in months): 3 months Int (n=97): 0.72 Comp (n=103): 0.9 Absolute change: -0.11 times in past 30 days Relative change: -13.56% Narrative results: No significant differences, t.(198) = 0.59. Favorable (Yes/No/No effect): Yes Statistical significance: No
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			Outcome: Frequency of Illicit or Other Substances as a Combined Measure Measure: Mean score for number of times using drugs in the past 30 days (Scores range from 0 to 3 times) Baseline Int (n=119): 1.15 score points Comp (n=117): 1.23 score points Follow-up (in months): 3 months Int (n=97): 1.03 score points Comp (n=103): 1.09 score points Absolute change: -0.26 score points Relative change: NA Narrative results: Intervention group reported less past 30-day use of other drugs compared to control group (Cohen's d= 0.34, p<0.05) Favorable (Yes/No/No effect): Yes Statistical significance: Yes
Author Year Schwinn 2019 Location USA (48 states, excluded Wyoming and Alaska) Years for Study: 2013 - 2017 Study Design: iRCT CG Suitability: Greatest	Setting: Online Urbanicity: Urban, suburban, rural Recruitment: Via Facebook ads targeted at 13- and 14-year-old girls, leading them to the study webpage. Eligibility: Aged 13 or 14 years, U.S. resident, English speaker, access to a private computer with internet. Sample size: Baseline 788 Int 396 Control 392	Intervention/program name: RealTeen Substance(s) focused: General Prevention Format: Computer, Internet/web-based Brief description of intervention and content: animated character designed as a peer model; included lessons followed by interactive exercises and quizzes. Each lesson delivered in order building on the skills taught in the previous one. New sessions became available weekly after completing the prior one. A review session to reinforce learned concepts.	Outcome: Frequency of Alcohol Use Measure: Average marginal counts of past month alcohol use Baseline Int (n=396): 0.44 Comp (n=392): 0.49 Follow-up (in months): 36 months Int (n=NR): 1.29 Comp (n=NR): 1.37 Absolute change: -0.03 counts in the past month Relative change: NA Narrative results: Negative binomial coefficient: -0.06 (SE 0.15) A decrease in reported alcohol use in

Quality of Execution (# of limitations): Fair (2 limitations)	<i>36-months post-intervention</i> Follow-up 92.3% (727/788) Loss to f/u 7.7% Study Population: Adolescents (Int) Age: 13.7 years (range: 11– 15) School level: Middle, High school Grade level(s): NR Sex: 100% female Race/ethnicity: Black or African American 24.0% White 64.0% Other race 18% Ethnicity Hispanic 15.0% Other details Academic performance: average letter grade between A - B Study population: Parents and Caregivers Parents' education: < 2 years of college 49% > 2 years of college 51% All other demographics NR Community characteristics: Geographic area: Urban 83% Rural 10% Large town 7%	Topics: goal setting, decision-making, puberty, body image, stress coping, drug knowledge, and refusal skills Implementer(s) School involved in intervention or School not involved: not involved Intervention duration: 3.5 weeks Intervention intensity: weekly Number of sessions/modules: 9 Time per session: 15-20 mins Total hours: 2hr 15 mins to 3hrs Booster: No Comparison group: Control group Received no intervention, measurement-only.	the intervention group compared to the control group Favorable (Yes/No/No effect): No effect Statistical significance: No Outcome: Frequency of Alcohol Binge or Heavy Drinking Measure: Mean binge drinking scale score (four or more drinks within a couple of hours) Baseline Int (n=396): 0.25 Comp (n=392): 0.36 Follow-up (in months): 36 months post-intervention Int (n=NR): 0.37 Comp (n=NR): 0.29 Absolute change: 0.19 scale points Relative change: NA Narrative results: B (SE)=0.23 (0.23) NS There was no significant difference in binge drinking between intervention and control participants. Favorable (Yes/No/No effect): No effect Statistical significance: No Outcome: Frequency of Cannabis Use Measure: Average marginal counts of past month cannabis use (range of 0 times to 70 or more times) Baseline Int (n=396): 0.88 Comp (n=392): 0.76 Follow-up (in months): 36 months Int (n=NR): 2.46 Comp (n=NR): 3.57
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			Absolute change: -1.23 counts in the past month Relative change: NA Narrative results: Intervention group reported a reduction in cannabis use compared to the control group, $b = -0.37$ (0.27), NS Favorable (Yes/No/No effect): Yes Statistical significance: No Outcome: Frequency of Tobacco Use Measure: Average marginal counts of past month tobacco use Baseline Int (n=396): 0.89 Comp (n=392): 0.85 Follow-up (in months): 36 months Int (n=NR): 0.75 Comp (n=NR): 2.12 Absolute change: -1.41 counts in the past month Relative change: NA Narrative results: Girls in intervention group reported less use of cigarettes ($B = -1.04$, $p = 0.007$; IRR = 0.353, compared to controls. Favorable (Yes/No/No effect): Yes Statistical significance: Yes Outcome: Frequency of Tobacco Use Average marginal counts of past month e-cigarette use Baseline Int (n=396): 0.59 Comp (n=392): 0.67 Follow-up (in months): 36 months
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			Int (n=NR): 0.22 Comp (n=NR): 1.49 Absolute change: -1.19 counts in the past month Relative change: NA Narrative results: Girls in intervention group had decreased e-cigarettes use ($B = -1.92$, $p < 0.001$; IRR = 0.146), compared to controls Favorable (Yes/No/No effect): Yes Statistical significance: Yes Outcome: Frequency of Illicit or Other Substances as a Combined Measure Measure: Average marginal counts of past-month drug use (Range of 0 times to 71 or more times using drugs in the last 30 days) Baseline Int (n=396): 0.97 Comp (n=392): 1.02 Follow-up (in months): 36 months Int (n=NR): 0.21 Comp (n=NR): 0.31 Absolute change: -0.10 scale points Relative change: Narrative results: The intervention had no impact on past month drug use ($B = -0.40$, NS) $B (SE) = -0.40 (0.35)$ NS Favorable (Yes/No/No effect): No effect Statistical significance: No Outcome: Anxiety Symptoms Measure: Past 30 day, 5-point Likert-scaled items extent to which they were bothered (Not at all = 0)
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			Baseline Int (n=396): 1.55 Comp (n=392): 1.6 Follow-up (in months): 36 months post-intervention Int (n=NR): 1.52 Comp (n=NR): 1.7 Absolute change: -0.13 scale points Relative change: NA Narrative results: Regression coefficient: B = -0.18, p = 0.033. Reductions in anxiety reported by the intervention group. Favorable (Yes/No/No effect): Yes Statistical significance: Yes Outcome: Depression Symptoms Measure: Past 30 day, 5-point Likert-scaled items extent to which they were bothered (Not at all = 0) Baseline Int (n=396): 1.79 Comp (n=392): 1.9 Follow-up (in months): 36 months post-intervention Int (n=NR): 1.73 Comp (n=NR): 1.78 Absolute change: +0.06 scale points Relative change: NA Narrative results: Regression coefficient: B = -0.18, p = .542) No significant difference between the intervention and control groups. Favorable (Yes/No/No effect): No effect Statistical significance: No Outcome: Perceived Stress
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			Measure: Past 30 day, 4-item index score Degree to which their life situations were unpredictable, uncontrollable, and stressful during the past month (Never = 0, All the time = 3). Baseline Int (n=396): 1.53 Comp (n=392): 1.6 Follow-up (in months): 36 months post-intervention Int (n=NR): 1.99 Comp (n=NR): 2.13 Absolute change: -0.07 scale points Relative change: NA Narrative results: Compared to girls in the control arm, girls in the intervention arm reported lower rates in perceived stress, $b = -0.12$, $p = 0.042$. Favorable (Yes/No/No effect): Yes Statistical significance: Yes
Author Year Schwinn 2021 Location USA (31 states and Puerto Rico) Years for Study: NR Study Design: iRCT CG Suitability: Greatest Quality of Execution (# of limitations): Good (1 limitations)	Setting: Online Urbanicity: NR Recruitment: Hispanic youth from 86% Hispanic-affiliated youth service agencies community organizations, 6% schools, 7% online ads) directed to study site; 3496 contacted and 1408 assessed for eligibility. Of these 678 (48.2%) eligible, consenting, and randomized, and 644 providing baseline data. Eligibility: Hispanic, proficient in English, ages 12-15 years, access to a smartphone. Sample size: Baseline 644	Intervention/program name: Vamos Substance(s) focused: General Prevention Format: Smartphone, Apps Brief description of intervention and content: prevention program sessions via a smartphone app, completed sequentially. Topics: refusing offers to use drugs, goal setting, media literacy, coping, managing mood (anxiety, sadness, and anger), and self-efficacy Implementer(s)	Outcome: Frequency of Alcohol Use Measure: Marginal estimate means of past-month alcohol use ranged from 0 times to 71 or more times in the last 30 days Baseline Int (n=321): 0.28 Comp (n=323): 0.19 Follow-up (in months): 36 months post-intervention Int (n=303): 2.43 Comp (n=269): 2.23 Absolute change: +0.11mean use Relative change: NA Narrative results: Past-month use of alcohol increased less among youth in the intervention arm compared with youth in the control arm only from

	Int 321 Control 323 <i>36-months post- intervention</i> Follow-up 88.8% (572/644) Int 94.4% (303/321) Control 83.3% (269/323) Loss to f/u 11.2% Study Population: Adolescents (Int) Age: 14.1 years (range: 12– 15) School level: Middle, High school Grade level(s): NR Sex: 60.6% female, 39.4% male Race/ethnicity: Black or African American 17.4% White 64.2% Other race 18.3% Ethnicity Hispanic 100% Other details Living arrangement Mother and father 64.4% Single parent 27.8% Grandparents; others 7.9% Language spoken at home Spanish only/mostly Spanish 35.4% Spanish and English equally 30.1% English only/mostly English 34.5% Study population: Parents and Caregivers Parental education: <2 years of college 63.4% >2 years of college 36.6%	School involved in intervention or School not involved: not involved Intervention duration: 2.5 months Intervention intensity: weekly Number of sessions/modules: 10 Time per session: 15 mins Total hours: 2.5 hours Booster: Yes Comparison group: Control group, measurement-only	baseline to 2-year follow-up (OR = 0.47, 95% CI [0.23, 0.99], $p < .05$) and from baseline to 3-year follow-up (OR = 0.60, 95% [CI 0.29, 1.24], NS). Favorable (Yes/No/No effect): Yes Statistical significance: No Outcome: Frequency of Cannabis Use Measure: Marginal estimate means of tobacco use ranged from 0 to 71 or more times in the past 30 days Baseline Int (n=321): 0.64 Comp (n=323): 0.5 Follow-up (in months):36 months post-intervention Int (n=303): 2.81 Comp (n=269): 2.86 Absolute change: -0.19 mean use Relative change: NA Narrative results: Past month use of cannabis increased less in the intervention group than control (OR = 0.27, 95% CI [0.09, 0.80], $p < 0.05$). Favorable (Yes/No/No effect): Yes Statistical significance: Yes Outcome: Frequency of Tobacco Use Measure: Marginal estimate means of past-month tobacco use ranged from 0 times to 71 or more times in the last 30 days Baseline Int (n=321): 0.02 Comp (n=323): 0.02 Follow-up (in months): 36 months post-intervention Int (n=303): 2.47
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	All other demographics NR Community characteristics: NR	Comp (n=269): 2.13 Absolute change: +0.34 mean use Relative change: NA Narrative results: Past month use of tobacco increased more in the intervention group than control [OR = 1.82 (CI: 0.36, 9.19), NS]. There was no significant difference in tobacco use between the intervention and control groups. Favorable (Yes/No/No effect): No Statistical significance: No Outcome: Frequency of Illicit or Other Substances as a Combined Measure Measure: Polydrug use scale score (use of two or more drugs in the past month) Baseline Int (n=321): 0.7 Comp (n=323): 0.3 Follow-up (in months): 36 months post-intervention Int (n=303): 1.56 Comp (n=269): 1.51 Absolute change: -0.35 scale points Relative change: NA Narrative results: Intervention group adolescents reported a lesser increase in past month polydrug use at 3 years compared to control group adolescents. [OR = 0.55, (CI: 0.32 to 0.93), p<.05] Favorable (Yes/No/No effect): Yes Statistical significance: Yes Outcome: Anxiety Symptoms Measure: Past 30 day, scaled mean range: 0 = not at all to 3 = all the time. Higher scores unfavorable
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			Baseline Int (n=NR): 0.88 Comp (n=NR): 0.61 Follow-up (in months): 36m post-intervention Int (n=NR): 0.79 Comp (n=NR): 0.94 Absolute change: -0.42 scale points Relative change: NA Narrative results: At follow-up, mean anxiety score decreased in intervention group, while it increased in the control group ($F(1, 536) = 1.07$) NS. Favorable (Yes/No/No effect): Yes Statistical significance: No Outcome: Depression Symptoms Measure: Past 30 day, scaled mean range: 0 = not at all to 3 = all the time Baseline Int (n=NR): 0.99 Comp (n=NR): 0.75 Follow-up (in months): 36 months post-intervention Int (n=NR): 0.96 Comp (n=NR): 1.03 Absolute change: -0.31 scale points Relative change: NA Narrative results: At follow-up, intervention group decreased, while it increased slightly in the control group. ($F(1, 536) = 0.45$ NS). Favorable (Yes/No/No effect): Yes Statistical significance: No
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Author Year: Slade 2023 Location: Australia (New South Wales and Queensland) Study period: 2018 – 2020 Study Design: gRCT CG Suitability: Greatest Quality of Execution (# of limitations): Fair (2 limitations)	Setting: School, Online, Home/Family Urbanicity: NR Recruitment: 156 Australian secondary schools approached, 12 schools randomized - 11 in New South Wales and 1 in Queensland, including 6 Catholic and 6 Independent schools. Of 1008 students-parent dyads, 626 assigned to intervention and 362 to control but baseline data only for 247 students (29 parents) in the intervention and 215 students (39 parents) in control. Eligibility: Year 8 students aged 12-14 from participating secondary schools. Sample size: Baseline 572 (78 parents) 12 schools Int 247 (29 parents) 6 schools Control 315 (49 parents) 6 schools <i>24-months post-baseline</i> Follow-up 62.2% (356/572) Int 61.5% (152/247) Adolescents 61.5% (152/247) Parents 6.9% (2/29) Control 64.8% (204/315) Adolescents 64.8% (204/315) Parents 7.6% (29/49) Loss to f/u 37.8% Study Population: Adolescents Age: 13.5 years (range: 12 – 14) School level: High school	Intervention/program name: Climate Schools Plus Substance(s) focused: Alcohol and Cannabis Format: Computer, Internet/web-based Brief description of intervention and content: Universal prevention program focusing on providing accurate substance use information, normative context, and resistance skills development to reduce alcohol and cannabis use/harms. Students complete an internet-based cartoon storyline individually. Optional class activities led by teachers to reinforce cartoon content through role-plays and discussions. -Year 8: 6 lessons on alcohol -Year 9: 6 lessons on alcohol and cannabis <i>Parent Component:</i> Designed to reinforce messaging about adolescent normative use targeting modifiable parental factors associated with adolescent substance use: communication, monitoring, rule-setting, attitudes towards alcohol, supply of alcohol, and parental modeling. Includes webinars on adolescent substance use prevention roles for parents. Online alcohol rule-ranking exercise for collective understanding of prevention roles. Series of brief online modules covering topics about alcohol/cannabis use and parenting strategies/communication.	Outcome: Prevalence of Alcohol Use Measure: Whether the student had one or more standard alcoholic drinks (yes/no). Baseline Int (n=247): 5.9% Comp (n=315): 9.6% Follow-up: 24 months Int (n=239): 20.7% Comp (n=311): 33.2% Absolute change: -8.80 percentage points Relative change: +1.45% Narrative results: Both groups saw an increase, but more control group students reported having at least one standard alcoholic drink compared to intervention group students at 24-month follow-ups, NS. Group x Time Interaction: B = -0.22, p = 0.451, OR = 0.80, 95% CI [0.45, 1.43]. Favorable (Yes/No/No effect): Yes Statistical significance: No Outcome: Prevalence of Binge or Heavy Drinking Measure: Whether the student consumed five or more standard drinks on one or more occasions (yes/no) over the past year. Baseline Int (n=247): 0.8% Comp (n=315): 1.6% Follow-up: 24 months Int (n=239): 6.2% Comp (n=311): 11.9% Absolute change: -4.9 percentage points Relative change: NR
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	Grade level(s): Year 8 and Year 9 Sex: 58.7% female, 41.3% male, 0.3% non-binary/gender fluid, 0.2% different identity, 0.9% missing Race/ethnicity: Race NR, Country of Birth Australia 90.6% Other English Speaking 2.7% Non-English Speaking 6.7% Missing 1.4% Study population: Parents and Caregivers Age: 47.2 years Average Sex: 80.8% female, 19.2% male Race/ethnicity: Race NR, Country of Birth Australia 85.1% Other English Speaking 4.5% Non-English Speaking 10.4% All other demographics NR Community characteristics: School Type: Independent 23.5 %	Implementer(s) School involved in intervention or School not involved: Yes, in classroom Intervention duration: 24 months Intervention intensity: Number of sessions/modules: 12 Time per session: 40 mins Total hours: 8 hrs. Booster: Yes Comparison group: Usual care, Regular Personal Development, Health, and Physical Education (PDHPE) alcohol and other drug lessons	Narrative results: Both groups increased, but more control group students reported engaging in heavy episodic drinking compared to intervention group students at 24-month follow-ups. NS Group x Time Interaction: (B = -0.64, p=0.375, OR = 0.53, 95% CI [0.13, 2.16]). Favorable (Yes/No/No effect): Yes Statistical significance: No Outcome: Alcohol-Related Harms & Consequences Measure: % of students reporting alcohol-related harms using the 23-item Rutgers Alcohol Problem Index Baseline Int (n=NR): 13.9% Comp (n=NR): 17.3% Follow-up: 24 months post-baseline Int (n=NR): 22.5% Comp (n=NR): 23.6% Absolute change: +2.3 percentage points Relative change: +18.6% Narrative results: Adjusted OR=1.01 (95%CI 0.67 to 1.52), p=0.96. No significant group differences in the change in alcohol-related harm over time. Favorable (Yes/No/No effect): No effect Statistical significance: No
Author Year: Teesson 2024 (Teesson 2020) Location: Australia	Setting: School, Online Urbanicity: NR Recruitment: Original study invited 556 schools to participate, only 88 secondary schools (12391 pupils) in three Australian	Intervention/program name: Arm 1 - Climate Schools-Substance Use (CSSU) Arm 2 - Climate Schools-Combined (CSC) Substance(s) focused: General Prevention	Outcome: Prevalence of Alcohol Use Measure: Prevalence of alcohol use (drinking) weekly CSSU vs control Baseline

(New South Wales, Western Australia, and Queensland) Years for Study: Sept 2013-Dec 2016 (original study) Aug 2018 - July 2021 (extended study) Study Design: gRCT CG Suitability: Greatest Quality of Execution (# of limitations): Fair (3 limitations)	states recruited 6386 students (71 schools) randomized into 4 arms, of which only 2 arms included digital substance use interventions and 1 arm is a control. Extended study invited 30-month follow-up participants from original trial. Eligibility: All 13-14 years pupils from participating schools in year 8 (New South Wales or Western Australia) & year 9 (Queensland). For extended study had to have participant in original study and provided 30-month follow-up data. Sample size: Baseline 4792 (53 schools) Int 3236 (34 schools) CSSU 1739 students (18 schools) CSC 1497 students (16 schools) Control 1556 students (19 schools) <i>72-months post-baseline</i> Follow-up 26.8% (1105/4128) Int 29.1% (794/2727) CSSC: 26.4% (394/1495) CSC: 32.5% (400/1232) Control 22.2% (311/1401) <i>30 months post-baseline</i> Follow-up 67.2% (3218/4792) Int 66.1% (2140/3236) CSSC: 66.1% (1151/1739) CSC: 66.1% (989/1497) Control 69.3% (1078/1556) Loss to f/u 72-months 73.2%	Format: Internet/web-based Brief description of intervention and content: online peer cartoon storyboards and classroom activities. Target areas: alcohol, cannabis, anxiety, and depression <i>CSSU</i> Universal substance use course for Year 8 students (Year 9 in Queensland) during health education classes; 12 lessons, each 40 minutes aimed at reducing alcohol and cannabis use/harms. <i>CSC</i> Sequential delivery of CSSU program in one year and <i>Climate Schools–Mental Health (CSMH)</i> program in the following year. CSMH program included universal mental health course for Year 9 students (Year 10 in Queensland) during health education classes. 6 lessons, each 40 mins aimed at reducing anxiety and depression. Implementer(s) School involved in intervention or School not involved: Yes, in classroom Intervention duration: CSSU 12m, CSC 24m Intervention intensity: weekly Number of sessions/modules: CSSU 12, CSC 18	Int (n=1739): 0.6% Comp (n=1556): 0.5% Follow-up (in months): 72 months Int (n=NR): 29.4% Comp (n=NR): 31.5% Absolute change: -2.2 percentage points Relative change: -22.2% Narrative results: NR Favorable (Yes/No/No effect): Yes Statistical significance: NR CSC vs control Baseline Int (n=1497): 0.5% Comp (n=1556): 0.5% Follow-up (in months): 72 months Int (n=NR): 27% Comp (n=NR): 31.5% Absolute change: -4.5 percentage points Relative change: -14.28% Narrative results: There was significantly slower year-by-year growth in weekly drinking in the CSC group than in the control group (0.78 [0.66-0.92]; p=0.0028). Favorable (Yes/No/No effect): Yes Statistical significance: Yes Outcome: Prevalence of Binge or Heavy Drinking Measure: % of participants reporting monthly heavy episodic drinking (5 or more drinks) (past 30 days) CSSU vs control Baseline Int (n=1739): 0.9 %
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	30 months 32.8% Study Population: Adolescents (int) Age: 13.5 years (range: 13-14) School level: Middle, High school Grade level(s): Years 8 and 9 Sex: CSSU - 44.8% female, 55.2% male CSC - 47.9% female, 52.1% male Race/ethnicity: NR Other Study population: Parents and Caregivers NR Community characteristics: School ICSEA*: generally, schools located in areas of above average SES CSSU - 1060 (96) CSC -1040 (84) Control - 1044 (87) * ICSEA=Index of Community Socio-Educational Advantage. The mean ICSEA in Australia is 1000 (SD 100).	Time per session: 40mins Total hours: CSSU 8hrs CSC 12hrs Booster: Yes Comparison group: Control group, standard health drug education curriculum, including lessons on alcohol, drugs, and mental health during school hours.	Comp (n=1556): 0.4% Follow-up (in months): 72 months Int (n=NR): 38.8% Comp (n=NR): 39.5% Absolute change: -1.2 percentage points Relative change: NA Narrative results: NR Favorable (Yes/No/No effect): Yes Statistical significance: NR CSC vs control Baseline Int (n=1497): 1.6% Comp (n=1556): 0.4% Follow-up (in months): 72 months Int (n=NR): 36% Comp (n=NR): 39.5% Absolute change: -4.7 percentage points Relative change: NA Narrative results: There was a significantly slower growth in the CSC group than in the control group OR=0.69 [0.58-0.81]; p<0.0001, Odds of drinking and heavy episodic drinking increased less over time in the combined group compared to the control at later time points. Favorable (Yes/No/No effect): Yes Statistical significance: Yes Outcome: Prevalence of Cannabis Use Measure: Past 30-day cannabis use CSSU vs control Baseline Int (n=1739): 0.4%
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			Comp (n=1556): 0.3% Follow-up (in months): 72 months Int (n=NR): 13.2% Comp (n=NR): 10.7% Absolute change: +2.4 percentage points Relative change: +22.4% Narrative results: NR Favorable (Yes/No/No effect): No Statistical significance: NR CSC vs control Baseline Int (n=1497): 0.8% Comp (n=1556): 0.3% Follow-up (in months): 72 months Int (n=NR): 12.3% Comp (n=NR): 10.7% Absolute change: +1.1 percentage points Relative change: +10.3% Narrative results: OR=0.85 95%CI 0.66-1.08) Favorable (Yes/No/No effect): No Statistical significance: No Outcome: Development of Substance Use Disorders (Cannabis) Measure: Symptoms of cannabis use disorder based on 16-item symptom checklist from DSM-5 CSSU vs control Baseline Int (n=NR): NR Comp (n=NR): NR Follow-up (in months): 60-72 months post-baseline Int (n=NR): 6.6%
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			Comp (n=NR): 5.7% Absolute change: +0.9 percentage points Relative change: +15.8% Narrative results: NR Favorable (Yes/No/No effect): No effect Statistical significance: NR CSC vs control Baseline Int (n=NR): NR Comp (n=NR): NR Follow-up (in months): 60-72 months post-baseline Int (n=362): 9.4% Comp (n=461): 5.7% Absolute change: +3.7 percentage points Relative change: +64.9% Narrative results: Adjusted OR 1.64 (0.84–3.19), p=0.15 Favorable (Yes/No/No effect): No Statistical significance: No Outcome: Development of Substance Use Disorders (Alcohol) Measure: Symptoms of alcohol use disorder based on DSM-5 checklist CSSU vs control Baseline Int (n=NR): NR Comp (n=NR): NR Follow-up (in months): 60-72 months post-baseline Int (n=364): 29.7% Comp (n=491): 30.4% Absolute change: -0.7 percentage points
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			Relative change: -2.3% Narrative results: NR Favorable (Yes/No/No effect): No effect Statistical significance: NR CSC vs control Baseline Int (n=NR): NR Comp (n=NR): NR Follow-up (in months): 60-72 months post-baseline Int (n=364): NR Comp (n=491): NR Absolute change: NR Relative change: NR Narrative results: Adjusted OR 1.15 (0.77–1.73), p=0.50 There was little evidence of group differences in the likelihood of a DSM-5 diagnosis of alcohol use disorder from 60-month to 72-month follow-up. Favorable (Yes/No/No effect): No Statistical significance: No Outcomes: Anxiety Symptoms Measure: Anxiety symptoms score 10 or more in the past 2 weeks based on 21-item Generalized Anxiety Disorder Scale (GAD-7) CSSU vs control Baseline Int (n=NR): 10.1% Comp (n=NR): 10.9% Follow-up (in months): 30 and 72 months Int (n=NR): 30m: 14.2%, 72m: 17.1% Comp (n=NR): 30m: 15.4%, 72m: 22.2% Absolute change: 30m: -0.4 pct pts, 72m: -4.3 pct pts
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			Relative change: 30m: -0.5%, 72m: -16.9% Narrative results: 30 months: No effect between intervention and control groups 72 months: Intervention group reported fewer anxiety symptoms than control Favorable (Yes/No/No effect): 30m: No effect, 72m: Yes Statistical significance: 30m: NR, 72m: NR CSC vs control Baseline Int (n=NR): 9.7% Comp (n=NR): 10.9% Follow-up (in months): 30 and 72 months Int (n=NR): 30m: 11.4%, 72m: 20.6% Comp (n=NR): 30m: 15.4%, 72m: 22.2% Absolute change: 30m: -2.8 pct pts, 72m: -0.4 pct pts Relative change: 30m: -16.8%, 72m: +4.3% Narrative results: 30 months: Intervention group reported fewer anxiety symptoms than control. 72 months: No effect between intervention and control groups Favorable (Yes/No/No effect): 30m: Yes, 72m: No effect Statistical significance: 30m: NR, 72m: NR Outcome: Depression Symptoms Measure: Past 2-weeks, Probable depressive disorder (yes or no) based on symptoms of depressive on 8 items Patient Health Questionnaire (PHQ-8). Scoring less than 10 on PHQ-8, coded as no; Scoring 10 or above coded as yes. CSSU vs control
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			Baseline Int (n=NR): 13.6% Comp (n=NR): 15.0% Follow-up (in months): 30 and 72 months Int (n=NR): 30m: 18.5%, 72m: 29.7% Comp (n=NR): 30m: 19.6%, 72m: 29.6% Absolute change: 30m: +0.3 pct pts, 72m: +0.7 pct pts Relative change: 30m: +4.1%, 72m: +4.5% Narrative results: 30 months: No effect between intervention and control groups at either follow up 72 months: No effect between intervention and control groups at either follow up Favorable (Yes/No/No effect): 30m: No effect, 72m: No effect Statistical significance: 30m: NR, 72m: NR CSC vs control Baseline Int (n=NR): 14.4% Comp (n=NR): 15.0% Follow-up (in months): 30 and 72 months Int (n=NR): 30m: 15.2%, 72m: 29.7% Comp (n=NR): 30m: 19.6%, 72m: 29.6% Absolute change: 30m: -3.8 pct pts, 72m: +0.7pct pts Relative change: 30m; -19.2 %, 72m: +4.5% Narrative results: 30 months: Intervention group showed less anxiety symptoms than control. 72 months: No effect between intervention and control groups Favorable (Yes/No/No effect): 30m: Yes, 72m: No effect Statistical significance: 30m:NR, 72m: NR
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Author Year: Vallentin-Holbech 2018 Location: Denmark (Southern Denmark) Years for Study: February 2015 - August 2016 Study Design: gRCT CG Suitability: Greatest Quality of Execution (# of limitations): Fair (2 limitations)	Setting: School Urbanicity: NR Recruitment: 135 public schools within the region of Southern Denmark assessed, 46 randomized but only 38 eligible (3580 students). Of these, 2325 (64.9%) students provided baseline data. Eligibility: grades 8 and 9 (aged 13-17 years) recommended by school principal or teachers Sample size: Baseline 2325 (38 schools) Int 1141 (18 schools) Control 1184 (20 schools) <i>3-months post-baseline</i> Follow-up 58.3% (1355/2325) Int 56.2% (641/1141) Control 60.3% (714/1184) Loss to f/u 41.7% Study Population: Adolescents Age: 51.8% 15 years (range: 13-17) School level: High school Grade level(s): 8th and 9th Sex: 54.0% female, 46.0% male Race/ethnicity: NR Other details: SES: 58.6% perceived family affluence above average Study population: Parents and Caregivers N/R	Intervention/program name: The GOOD Life Substance(s) focused: Alcohol specific Format: Computer, Smartphone, Internet/web-based Brief description of intervention and content: normative feedback specific to each school grade, using three communication channels: classroom sessions, posters, and a web application. Student Response System used for an anonymous quiz to show perceived vs. actual norms with 4–5 messages included in a single classroom activity. Classroom Sessions: 40-minute session led by the research team, introducing social norms and their impact on adolescents. Posters: 4–6 posters displayed around schools for ongoing exposure to social norms messages Implementer(s) School involved in intervention or School not involved: Yes in classroom Intervention duration: 2 months Intervention intensity: Number of sessions/modules: 3 Time per session: 45-60 mins Total hours: 2hrs 15 mins Booster: No	Outcome: Prevalence of Alcohol use Binge or heavy drinking Measure: % of students reporting binge drinking in the last 30 days Baseline Int (n=1141): 23.3% Comp (n=1184): 24.4% Follow-up (in months): 3 months Int (n=641): 30.3% Comp (n=714): 28.2% Absolute change: +3.2 percentage points Relative change: +12.5% Narrative results: NR Favorable (Yes/No/No effect): No Statistical significance: NR Outcome: Alcohol-Related Harms & Consequences Measure: % of students reporting two or more alcohol-related harms using a summary measure based on a scale used in the SNIPE study Baseline Int (n=1141): 20.5% Comp (n=1184): 15.3% Follow-up (in months): 3 months Int (n=641): 31.0% Comp (n=714): 38.0% Absolute change: -12.2 percentage points Relative change: -39.1% Narrative results: Adjusted OR=0.59 (95% 0.37 to 0.93), p=0.024. Significant intervention effect for two or more alcohol-related harms. Favorable (Yes/No/No effect): Yes
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	Community characteristics: NR	Comparison group: Control group assessment only	Statistical significance: Yes
Author Year: Velicer 2013 Location: USA, Rhode Island Study period: 2007 - 2011 Study Design: gRCT CG Suitability: Greatest Quality of Execution (# of limitations): Fair (4 limitations)	Setting: School Urbanicity: NR Recruitment: 58 (11312 students) public middle schools in Rhode Island approached, and only 20 (4158 students) eligible and randomized Eligibility: English speaking 6th grade middle school students. Exclusions: schools with only 7th and 8th graders, or requiring active consent or declining to participate Sample size: Baseline 4158 (20 schools) Int 1974 (10 schools) Control 2184 (10 schools) <i>36-months post-baseline</i> Follow-up 71.7% (2983/4158) Int 71.1% (1404/1974) Control 72.3% (1579/2184) Loss to f/u 28.3% Study Population: Adolescents (int) Age: 11.41 years School level: Middle school Grade level(s): 6th Sex: 47.7% female, 52.3% male Race/ethnicity: Black or African American 4.60%	Intervention/program name: No name Substance(s) focused: General Prevention and Tobacco and Alcohol Format: Computer-based Brief description of intervention and content: in-class computerized sessions to reduce tobacco and alcohol use among adolescents; includes a cessation component for smokers based on transtheoretical model (TTM) Start of 6th grade: 1st session 7th grade: 3 sessions about 2 months apart Start of 8th grade: last session Implementer(s) School involved in intervention or School not involved: Yes, in classroom Intervention duration: 36 months Intervention intensity: Number of sessions/modules:5 Time per session: 30 mins Total hours: 2hrs 30 mins Booster: No	Outcome: Alcohol Use Initiation Measure: Never drinkers and experimental drinkers were asked subsequent questions to determine their stage of drinking acquisition Baseline Int (n=2184): 2.2% Comp (n=1974): 2.0% Follow-up (in months): 36 months Int (n=1579): 14.4% Comp (n=1404): 10.1% Absolute change: +4.1 percentage points Relative change: +29.6% Narrative results: The Energy Balance group (control) had significantly lower rates of alcohol acquisition compared to the substance use prevention group, p<0.05 Favorable (Yes/No/No effect): No Statistical significance: Yes Outcome: Tobacco Use Initiation Measure: Never smokers and experimental smokers were asked subsequent questions to determine their stage of smoking acquisition Baseline Int (n=2184): 1.7% Comp (n=1974): 1.0% Follow-up (in months): 36 months

	Asian 2.60% White 66.20% American Indian 2.10% Pacific Islander 0.7% Mixed race 17.2% Unknown/NR 6.6% Ethnicity Hispanic 12.20% Study population: Parents and Caregivers NR Community characteristics: NR	Comparison group: Control group, Energy Balance intervention group received by 10 schools focused on physical activity, diet, and TV viewing limits.	Int (n=1579): 9.2% Comp (n=1404): 5.7% Absolute change: +2.8 percentage points Relative change: NA Narrative results: The Energy Balance (EB) group had significantly lower rates of smoking acquisition compared to the Substance Use Prevention (SP) group at all time points measured. $p < .05$ Favorable (Yes/No/No effect): No Statistical significance: Yes
Author Year Vogl 2014 Location: Australia (Sydney) Years for Study: March 2008 – June 2009 Study Design: gRCT CG Suitability: Greatest Quality of Execution (# of limitations): Fair (4 limitations)	Setting: School, Online Urbanicity: NR Recruitment: based on existing relationships with researchers, 30 independent and Catholic secondary schools in Sydney approached, only 21 committed (2309 students). Of eligible students, 1839 (79.6%) consented and randomized, and only 1734 provided baseline data. Eligibility: Year 10 students at participating schools Sample size: Baseline 1734 (21 schools) Int 906 (11 schools) Control 828 (10 schools) <i>10-months post- intervention</i> Follow-up 75.5% (1309/1734) Int 82.1% (744/906) Control 68.2% (565/828) Loss to f/u 24.5%	Intervention/program name: Climate Schools: Psychostimulant and Cannabis Substance(s) focused: Psychostimulant and Cannabis Format: Computer, Internet/web-based Brief description of intervention and content: computer-based aimed at reducing cannabis and psychostimulant use/harms based on a social influence approach to prevention education. Each lesson split into a computer component followed by teacher-led activities. Program content includes various topics outlined in Table 1 of the study. Implementer(s) School involved in intervention or School not involved: Yes in classroom	Outcome: Frequency of Cannabis Use Measure: past 60-day, mean frequency scale Baseline Int (n=906): 0.12 Comp (n=828): 0.23 Follow-up (in months): 10 months Int (n=570): 0.16 Comp (n=403): 0.29 Absolute change: -0.01 scale points Relative change: NA Narrative results: Intervention was not a significant predictor of the frequency of last three-month cannabis use at linear growth over time (Event rate ratio = 1.15, 95% CI: 0.97-1.39) Favorable (Yes/No/No effect): No effect Statistical significance: No Outcome: Frequency of Illicit Drug Use Measure: Mean frequency of ecstasy use (5-point scale)

	Note: only 37.5% completed all surveys Study Population: Adolescents Age: 15.44 years (range: 15-16) School level: High school Grade level(s): Year 10 Sex: 33.8% female, 66.2% male Race/ethnicity: NR Study population: Parents and Caregivers NR Community characteristics: NR	Intervention duration: 3 months (during Terms 2 & 3) Intervention intensity: Number of sessions/modules: 6 Time per session: 40 mins Total hours: 4hrs Booster: No Comparison group: Usual care, Teachers completed a questionnaire detailing timing and content of usual drug education health classes provided for Year 10 on psychostimulant and cannabis. The number of lessons ranged from 8 to 13.5; and 3 schools used a social influence program with a harm-minimization approach; 1 school delivered a harm-minimization program without specifying approach type; 4 schools did not cover psychostimulants as a topic.	Baseline Int (n=906): 0.01 Comp (n=828): 0.15 Follow-up (in months): 10 months Int (n=570): 0.11 Comp (n=403): 0.12 Absolute change: +0.04 scale points Relative change: NA Narrative results: There was no significant group differences in the linear growth rate of ecstasy by time [OR = 0.95, (CI: 0.82 to 1.12)] Favorable (Yes/No/No effect): No effect Statistical significance: No Outcome: Frequency of Illicit Drug Use Measure: Mean frequency of methamphetamine use (5-point scale) Baseline Int (n=906): 0.08 Comp (n=828): 0.12 Follow-up (in months): 10 months Int (n=570): 0.09 Comp (n=403): 0.1 Absolute change: +0.03 scale points Relative change: NA Narrative results: Intervention was not a significant predictor of the linear growth frequency of methamphetamine use over time [OR = 1.17, (CI: 0.92 to 1.49)] Favorable (Yes/No/No effect): No effect Statistical significance: Yes Outcome: Cannabis Use Initiation
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			Measure: Proportion (%) of students reporting ever having used cannabis Baseline Int (n=906): 0.09% Comp (n=828): 0.15% Follow-up (in months): 10 months Int (n=570): 0.12% Comp (n=403): 0.2% Absolute change: -0.02 percentage points Relative change: -10.0% Narrative results: Intervention not a significant predictor of linear growth over time (OR = 1.05, 95% CI: 0.92-1.20). Favorable (Yes/No/No effect): No effect Statistical significance: No Outcome: Illicit Drug Use Initiation (Ecstasy) Measure: Proportion (%) of students reporting having ever used ecstasy Baseline Int (n=906): 0.05 % Comp (n=828): 0.07% Follow-up (in months): 10 months Int (n=570): 0.06% Comp (n=403): 0.07% Absolute change: +0.01 percentage points Relative change: +20.0% Narrative results: Intervention condition was not a significant predictor of having ever used ecstasy after taking baseline and gender into account [OR = 1.00 (CI: 0.55 to 1.81)] Favorable (Yes/No/No effect): No effect Statistical significance: No
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			Outcome: Illicit Drug Use Initiation (Methamphetamines) Measure: Proportion (%) of students reporting having ever used methamphetamines Baseline Int (n=906): 0.04% Comp (n=828): 0.05% Follow-up (in months): 10 months Int (n=570): 0.04% Comp (n=403): 0.05% Absolute change: 0 percentage points Relative change: 0% Narrative results: Intervention was not a significant predictor of the linear growth in the odds of having used methamphetamine over time [OR = 1.02, (CI: 0.85 to 1.22)] Favorable (Yes/No/No effect): No effect Statistical significance: No
Author Year: Walton 2013 Location: USA Years for Study: April 2007–December 2009 Study Design: iRCT CG Suitability: Greatest Quality of Execution (# of limitations): Fair (3 limitations)	Setting: Clinic Urbanicity: Urban Recruitment: adolescent patients were recruited in the waiting areas of 7 federally qualified community health clinics. Screened for cannabis use and randomized to (one of three study arms). Of 1416 adolescents screened, 366 eligible and 328 (89.6%) completed baseline. Eligibility: Adolescents (12-18 years) with consent to participate, no other sibling already in the study and who self-reported any/ever cannabis use in the past year	Intervention/program name: Project Chill Substance(s) focused: General Prevention Format: iPad/Tablet Brief description of intervention and content: Brief, tailored intervention aimed at preventing cannabis use among adolescents. Delivered in clinic waiting areas via a tablet-based program. Provided brief content focused on reducing cannabis use, covering information on cannabis, alcohol, and other illicit drugs.	Outcome: Frequency of Alcohol Use Measure: Adolescent patient self-report of frequency of alcohol in the past 3 months among baseline cannabis users Baseline: Int (n=100): 0.91 (SD 1.09) scale points Comp (n=110): 0.98 (SD 1.12) scale points Follow-up (in months): 12 months post single session intervention Int (n=100 imputed): 0.58 (SD 0.82) scale points Comp (n=110 imputed): 0.79 (SD 0.96) scale points Absolute change: -0.52 scale points Relative change: NA

	Sample size: Baseline 210 Int 100 Control 110 <i>12-months post-baseline</i> Follow-up 81.4% (171/210) Int 77.0% (77/100) Control 85.5% (94/110) Loss to f/u 18.6% Study Population: Adolescents (int) Age: 16.4 years (range: 12-18) School level: Middle, High school Grade level(s): NR Sex: 67.0% female, 33.0% male Race/ethnicity: Black or African American 61.0% Ethnicity Hispanic 16.2% Other details Academic performance (Self-reported) failing grades 28.0% dropped out of school 6.0% Study population: Parents and Caregivers NR Community characteristics: NR	Implementer(s) School involved in intervention or School not involved: not involved Intervention duration: 1 day Intervention intensity: Number of sessions/modules: 1 Time per session: NR Total hours: NR Booster: No Comparison group: Control group, Information only; handed a tri-fold brochure containing warning signs of cannabis problems, resources (substance use treatment, suicide hotlines, employment services, leisure activities), and cannabis information websites).	Narrative results: Estimate from generalized estimating equation = -0.16 (SE 0.20) p=0.44 Favorable (Yes/No/No effect): Yes Statistical significance: No Outcome: Frequency of Cannabis Use Measure: Adolescent patient self-report of frequency of cannabis use in the past 3 months among baseline cannabis users Baseline: Int (n=100): 3.06 scale score (SD 1.90) Comp (n=110): 3.25 scale score (SD 1.87) Follow-up (in months): 12 months post single session intervention Int (n=100 imputed): 2.04 scale score (SD 2.20) Comp (n=110 imputed): 2.14 scale score (SD 2.21) Absolute change: +0.09 scale points Relative change: NA Narrative results: Estimate from generalized estimating equation = -0.03 (SE 0.16) p=0.85 Favorable (Yes/No/No effect): No effect Statistical significance: No Outcome: Frequency of Illicit or Other Substances as a Combined Measure Measure: Adolescent patient self-report of frequency of other (listed) drugs in the past 3 months among baseline cannabis users Baseline: Int (n=100): 0.86 (SD 3.01) scale points Comp (n=110): 1.16 (SD 2.71) scale points
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			Follow-up (in months): 12 months post single session intervention Int (n=100 imputed): 0.48 (SD 2.13) scale points Comp (n=110 imputed): 0.64 (SD 2.12) scale points Absolute change: -0.87 scale points Relative change: NA Narrative results: Estimate from generalized estimating equation = 0.21 (SE 0.20) p=0.66 Favorable (Yes/No/No effect): Yes Statistical significance: No Outcome: Cannabis-related Harms & Consequences Measure: Adolescent patient self-report of number of consequences of cannabis use (items on list) in the past 3 months among baseline cannabis users Baseline: Int (n=100): 14.3 (SD 15.5) items Comp (n=110): 14.0 (SD 15.0) items Follow-up (in months): 12 months post single session intervention Int (n=100 imputed): 12.7 (SD 13.8) items Comp (n=110 imputed): 11.5 (SD 14.4) items Absolute change: +0.9 items Relative change: NA Narrative results: Estimate from generalized estimating equation = 0.08 (SE 0.17) p=0.62 Favorable (Yes/No/No effect): No effect Statistical significance: No Outcome: Cannabis-related Harms & Consequences (Driving)
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			Measure: Adolescent patient self-report of frequency of driving under influence of cannabis in the past 3 months among baseline cannabis users Baseline: Int (n=100): 0.48 (SD 1.06) scale points Comp (n=110): 0.26 (SD 0.66) scale points Follow-up (in months): 12 months post single session intervention Int (n=100 imputed): 0.45 (SD 0.99) scale points Comp (n=110 imputed): 0.25 (SD 0.85) scale points Absolute change: -0.02 scale points Relative change: NA Narrative results: Estimate from generalized estimating equation =-0.17 (SE 0.44) p=0.70 Favorable (Yes/No/No effect): No effect Statistical significance: No
Author Year Walton 2014 Location: USA Years for Study: April 2007–December 2009 Study Design: iRCT CG Suitability: Greatest Quality of Execution (# of limitations): Fair (2 limitations)	Setting: Clinic Urbanicity: Urban Recruitment: See Walton 2013 for details. Of 1416 adolescents screened, 714 eligible and 667 (93.4%) completed baseline. Eligibility: see Walton 2013 for details. Also had to self-report as non-users of cannabis Sample size: Baseline 481 Int 247 Control 234 <i>12-months post-baseline</i> Follow-up 88.8% (427/481) Int 89.1% (220/247) Control 88.5% (207/234)	Intervention/program name: Project Chill Substance(s) focused: General Prevention Format: Computer-based Brief description of intervention and content: an animated, interactive program for preventing substance use, delivered by a virtual therapist, providing affirmations and summaries. Guided by a buddy chosen by participants, role-play scenarios showed characters in risky situations, with progression over time in various consequences. Program delivered privately in a clinic room and participants given information-only brochure.	Outcome: Frequency of Cannabis Use (among baseline cannabis non-users) Measure: Adolescent patient (cannabis non-user at baseline) self-reporting frequency of cannabis use in the past 3 months on a scale Baseline: Int (n=247): 0 by definition Comp (n=234): 0 by definition Follow-up (in months): 12 months post baseline (intervention) Int (n=220): Not reported Comp (n=207): Not reported Absolute change: Not reported Relative change: Not reported Narrative results: Incident rate ratio=0.86 (95%CI 0.58, 1.27), p-value not reported.

	Loss to f/u 11.2% Study Population: Adolescents (int) Age: 14.7 years (range: 12-18) School level: Middle, High school Grade level(s): 40.1% Grades 6-8 Sex: 55.5% female, 44.5% male Race/ethnicity: Black or African American 62.4% Ethnicity Hispanic 7.0% Other details: Academic performance (Self-reported) Failing grades 16.6% Study population: Parents and Caregivers NR Community characteristics: NR	Implementer(s) School involved in intervention or School not involved: not involved Intervention duration: 1 day Intervention intensity: Number of sessions/modules: 1 Time per session: 33 mins Total hours: 33 mins Booster: No Comparison group: Control group given a brochure containing warning signs of problems with cannabis and community resources (e.g. substance use, mental health and leisure activities).	Favorable (Yes/No/No effect): Yes Statistical significance: No Outcome Frequency of Illicit or Other Substances as a Combined Measure (among baseline cannabis non-users) Measure: Adolescent patient (cannabis non-user at baseline) self-reporting frequency of other drug use (list) in the past 3 months on a scale Baseline: Int (n=247): 0.2 (SD 0.8) scale points Comp (n=234): 0.2 (SD 1.1) scale points Follow-up (in months): 12 months post baseline (intervention) Int (n=220): Not reported Comp (n=207): Not reported Absolute change: Not reported Relative change: Not reported Narrative results: Intervention participants reported a decrease in past 3-month other drug use [Incident Rate Ratio: 0.78 (CI: 0.38, 1.58) p-value not reported. Favorable (Yes/No/No effect): Yes Statistical significance: No Outcome: Other Alcohol Use Measures (among baseline cannabis non-users) Measure: Adolescent patient (cannabis non-user at baseline) self-reporting alcohol use in the past 3 months on a summed severity scale Baseline: Int (n=247): 0.2 (SD 0.6) scale points Comp (n=234): 0.2 (SD 0.5) scale points
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			Follow-up (in months): 12 months post baseline (intervention) Int (n=220): Not reported Comp (n=207): Not reported Absolute change: Not reported Relative change: Not reported Narrative results: Incident rate ratio=1.22 (95% CI 0.75, 1.99) No significant effects were observed at 12 months with a reduction in use for the control group. Favorable (Yes/No/No effect): No effect Statistical significance: No Outcome: Cannabis Use Initiation Measure: Adolescent patient (cannabis non-user at baseline) self-reported any use of Cannabis in the last 12 months Baseline: Int (n=247): 0% as assigned Comp (n=234): 0% as assigned Follow-up (in months): 12 months after baseline (intervention) Int (n=220): 16.82% Comp (n=211): 24.16% Absolute change: -7.34 percentage points (95%CI-14.98–0.00); p<0.05 Relative change: -30.4% Narrative results: Relative Rate (RR) 0.70 (95%CI 0.48, 1.00), p<0.05. Favorable (Yes/No/No effect): Yes Statistical significance: Yes Outcome: Antisocial behaviors - Delinquency (among baseline cannabis non-users)
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			Measure: Adolescent patient (cannabis non-user at baseline) self-reporting delinquency behaviors (list of 10) in the past 3 months, summed. Baseline: Int (n=247): 2.0 (SD 4.9) behaviors summed from a list Comp (n=234): 1.8 (SD 4.3) behaviors summed from a list Follow-up (in months): 12 months post baseline (intervention) Int (n=220): Not reported Comp (n=207): Not reported Absolute change: Not reported Relative change: Not reported Narrative results: Incident rate ratio=0.85 (95%CI 0.53, 1.36) p-value not reported. Favorable (Yes/No/No effect): Yes Statistical significance: No
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