Adolescent Prevention: Lessons from the Substance Use Field

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HIV Grand Rounds

UCLA CHIPTS/CFAR/AIDS Institute

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My Path

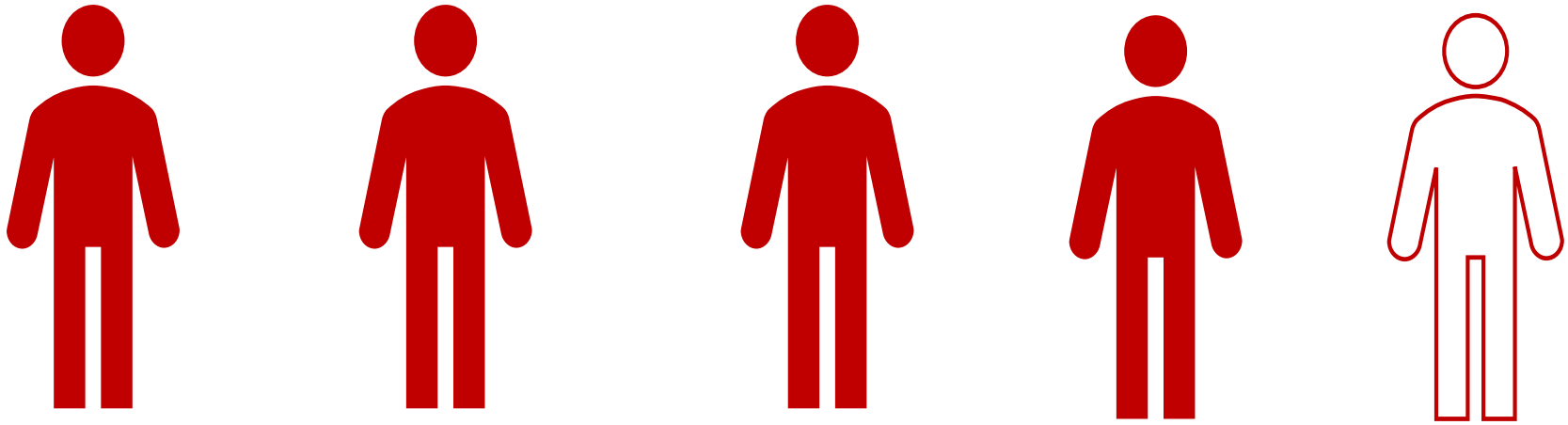
Adolescent Substance Use and Sexual Risk

Past 30-Day Alcohol Use

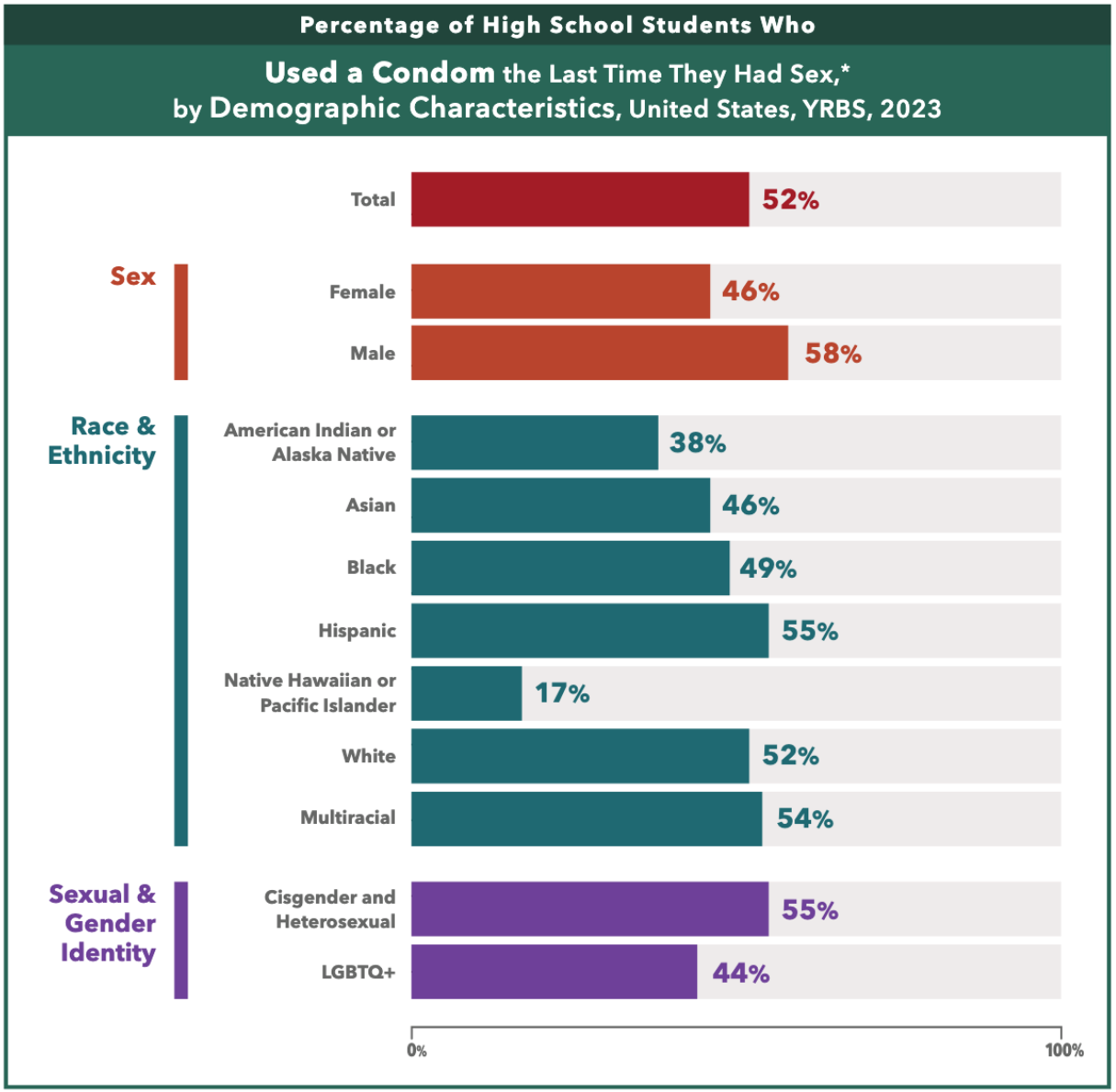
Past 30-Day Cannabis Use

Centers for Disease Control and Prevention (CDC). 1991-2023 High School Youth Risk Behavior Survey Data. Available at http://yrbs-explorer.services.cdc.gov/.

Sexually Active in Past 30 Days



https://www.cdc.gov/yrbs/dstr/pdf/YRBS-2023-Data-Summary-Trend-Report.pdf



*Among currently sexually active students.

https://www.cdc.gov/yrbs/dstr/pdf/YRBS-2023-Data-Summary-Trend-Report.pdf

Alcohol or Drug Use Before Last Sexual Intercourse (among those who are sexually active; 2023)

Centers for Disease Control and Prevention (CDC). 1991-2023 High School Youth Risk Behavior Survey Data. Available at http://yrbs-explorer.services.cdc.gov/.

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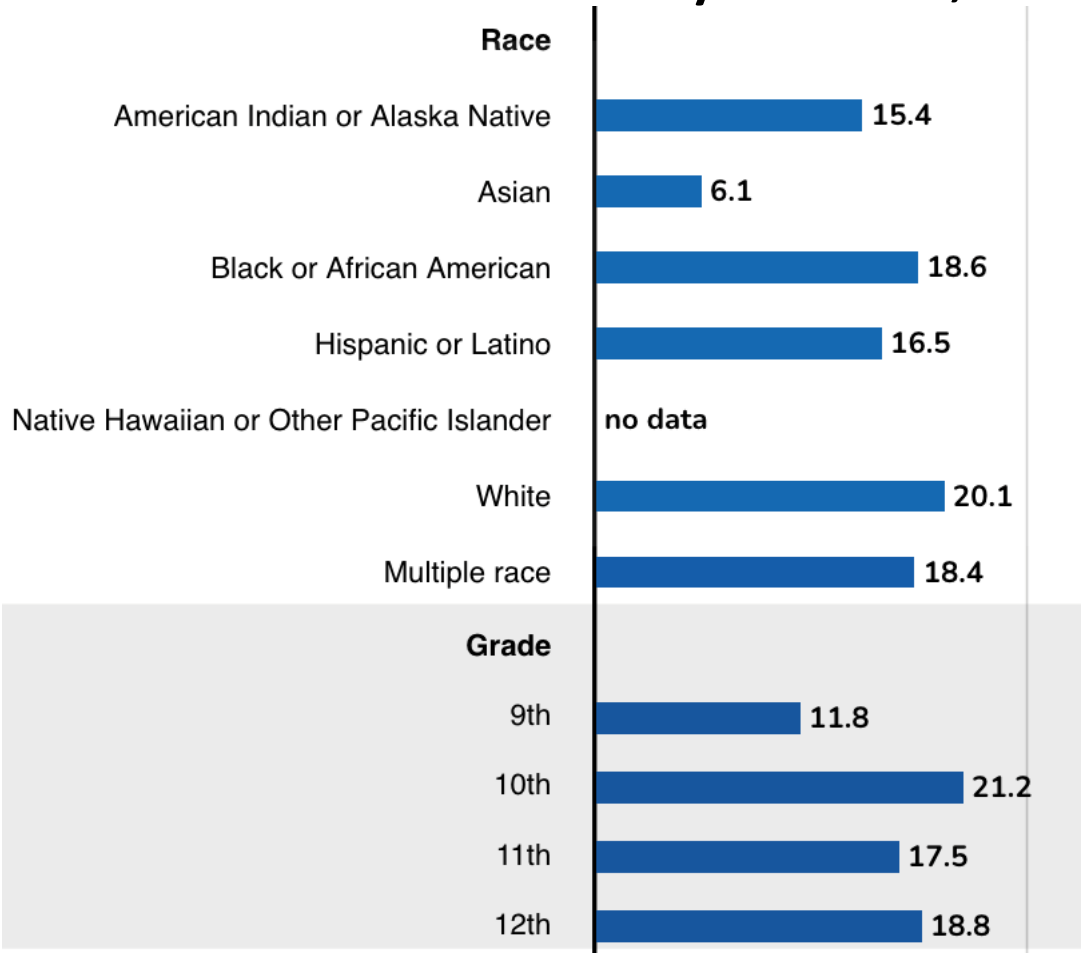

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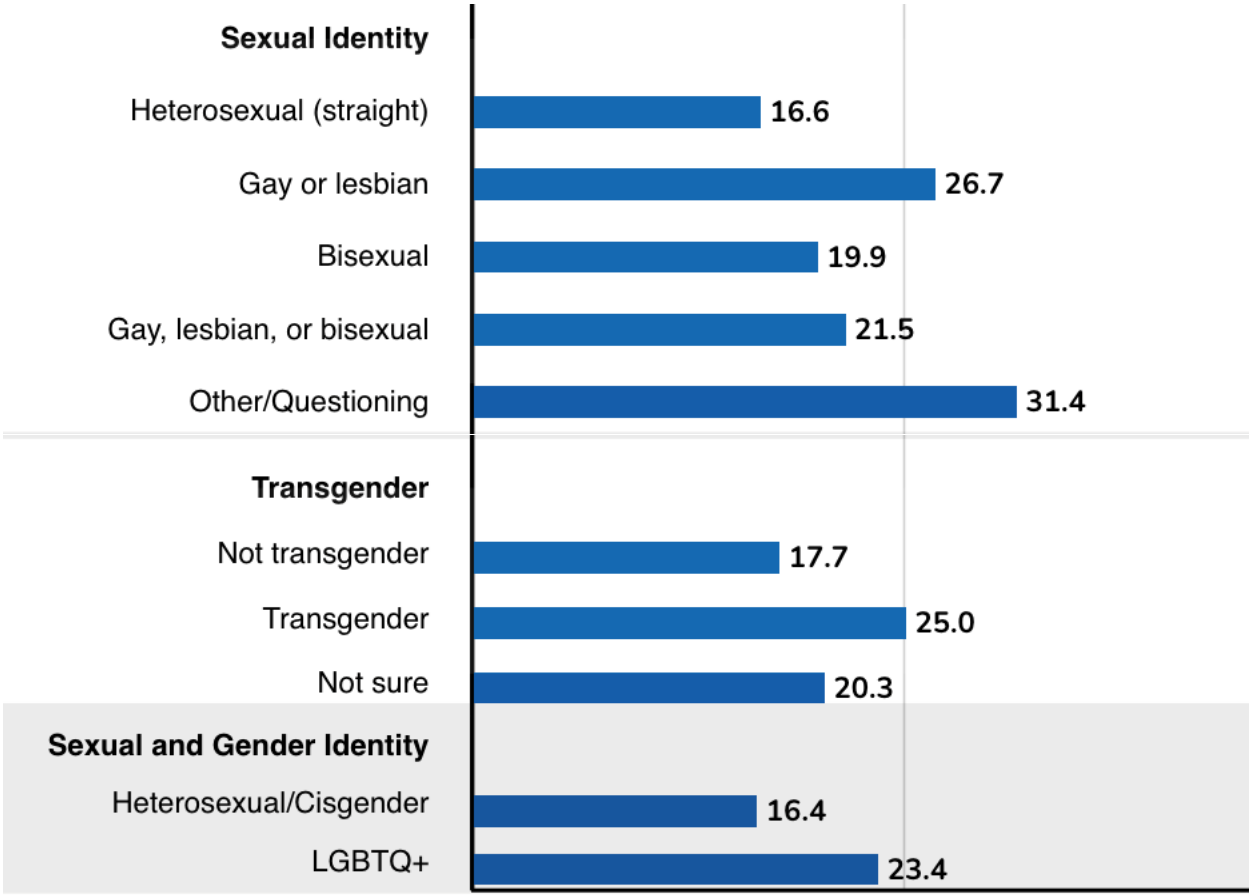

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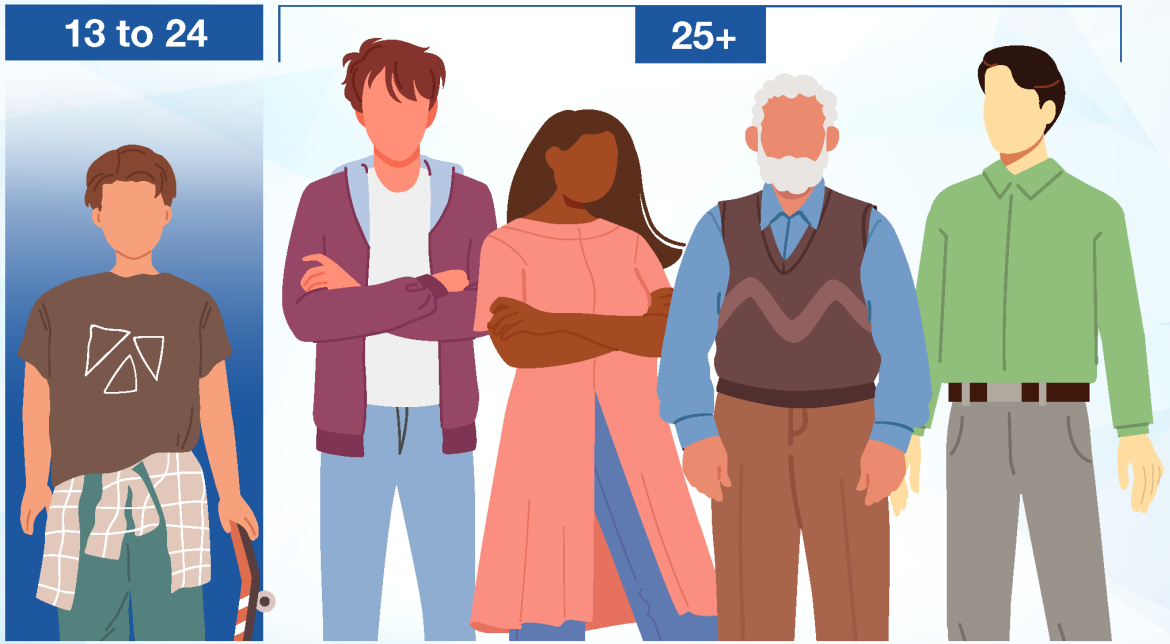
HIV in Adolescents and Young Adults

In 2022, adolescents and young adults (aged 13 to 24 years) accounted for 19% (7,099) of all new HIV diagnoses. Among those, 80% were 20 to 24 years old.



Nearly 1 in 5 of all new HIV diagnoses were among adolescents and young adults.

Source: Centers for Disease Control and Prevention (CDC)

https://hivinfo.nih.gov/understanding-hiv/fact-sheets/hiv-and-adolescents-and-young-adults

Substance Use and Sexual Risk are Highly Linked

- Substance use is associated with:
  - Currently sexually active
  - Having 4 or more parters
  - Not using a condom at last intercourse
- Similar patterns among heterosexual and LGB identified students

Clayton et al., 2019

Important Developmental Periods And Life Transitions

Life Course Epidemiology

"Study of long-term effects on later health or disease risk of physical or social exposures during gestation, childhood, adolescence, young adulthood and later adult life."

- Critical period
- Sensitive period

Kuh et al., 2003

Critical Period

Exposures during a critical period of development have effects on the "structure or function of organs, tissues or body systems that are not modified in any dramatic way by later experience, and that precipitate disease later in life."

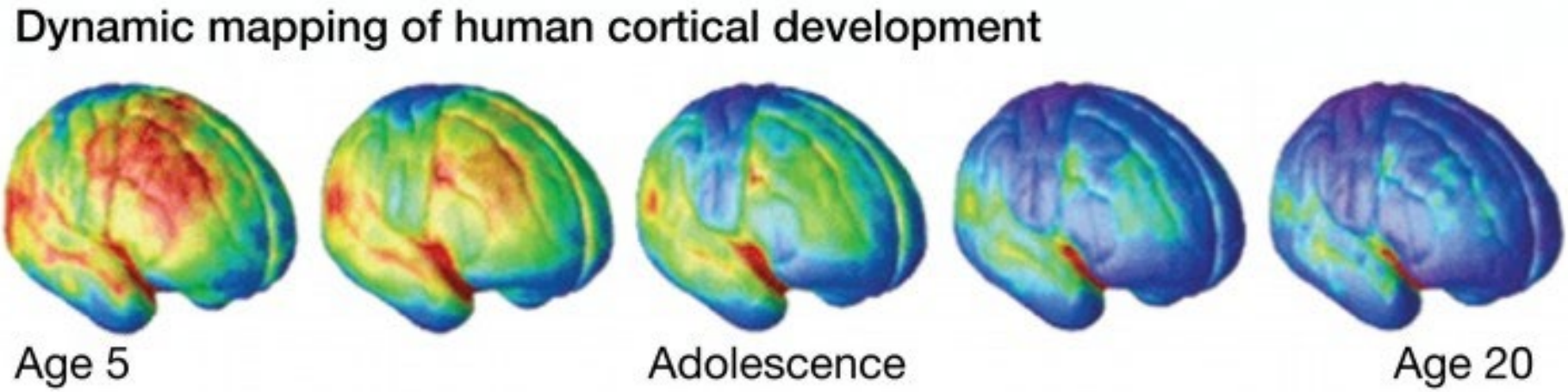
Kuh et al., 2003

Sensitive Period

"A time period when an exposure has a stronger effect on development and subsequent disease risk than it would at other times. Outside the time period any excess risk will be weaker."

Kuh et al., 2003

Time-Lapse MRI Images

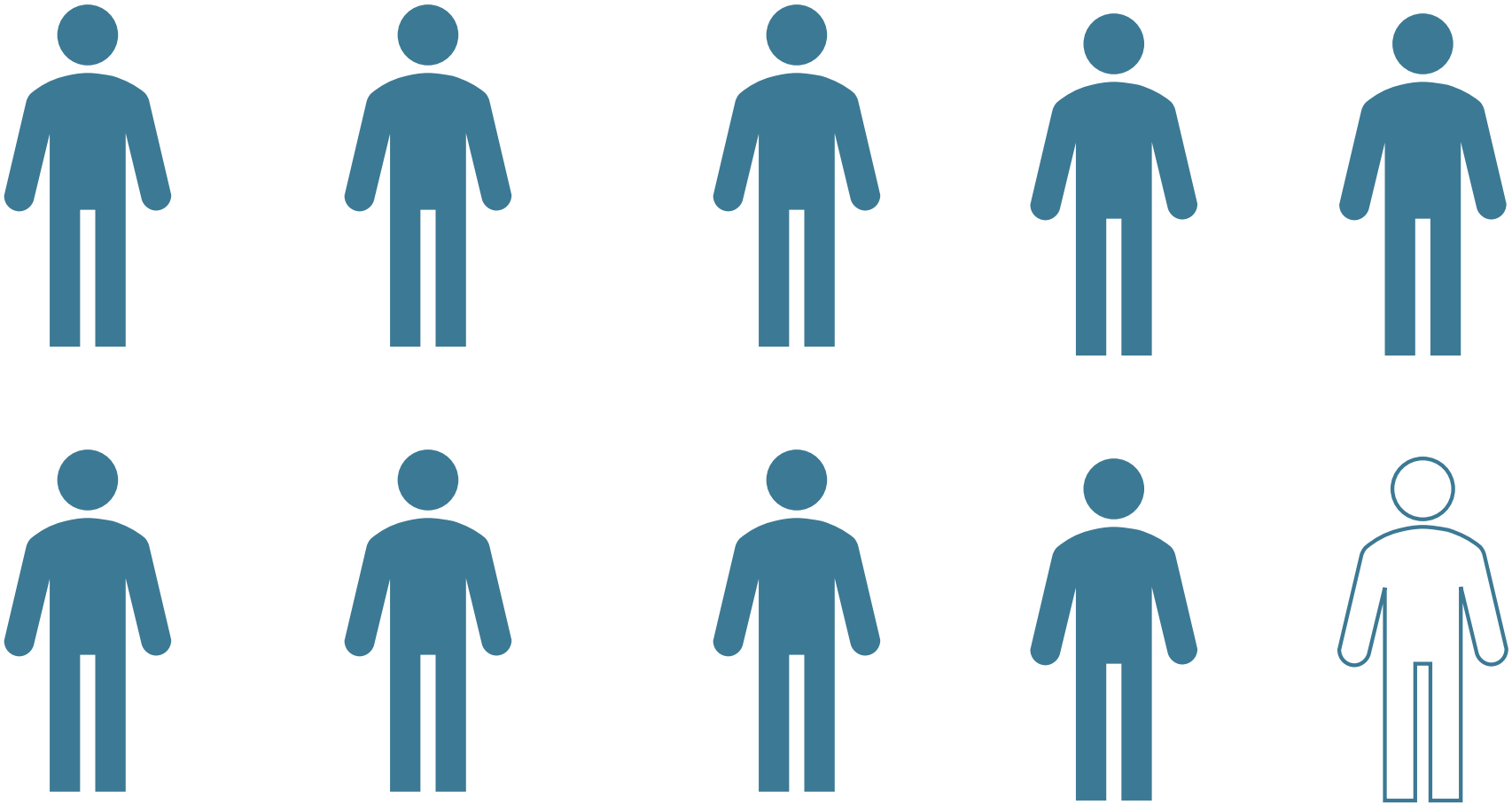


Source: "Dynamic mapping of human cortical development during childhood through early adulthood," Nitin Gogtay et al., Proceedings of the National Academy of Sciences, May 25, 2004; California Institute of Technology.

The Adolescent Brain (My Interpretation)

https://youtu.be/v9FunBolqvA?t=75

Why Is Early Prevention Important?



Early Sexual Debut and Sexual Risk

- Among high school students in the US, early sexual debut (e.g., <13) is associated with:
  - Not using a condom at last sex
  - Having four or more sexual partners during their lifetime
- Similar among LGB and heterosexual students

  Lowry et al., 2017

- Strong associations with STI acquisition

  (Upchurch et al., 2004; Wang et al., 2024; Jimenez-Betancort 2025)

What is Prevention?

Definition of Prevention

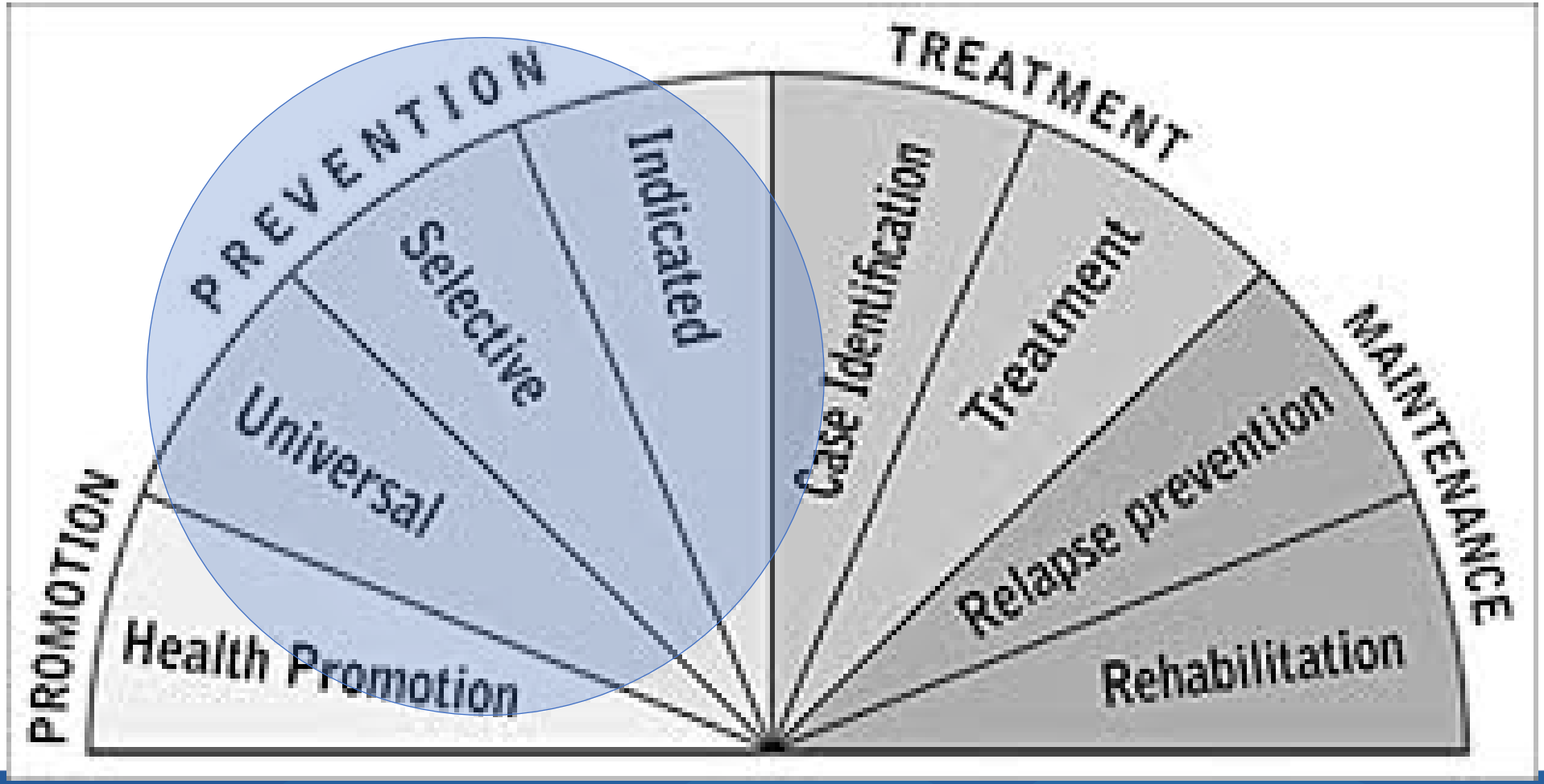
"A proactive process that empowers individuals and systems to meet the challenges of life events and transitions by creating and reinforcing conditions that promote healthy behaviors and lifestyles."

- Center for Substance Abuse Prevention (CSAP)/Substance Abuse and Mental Health Services Administration (SAMHSA)

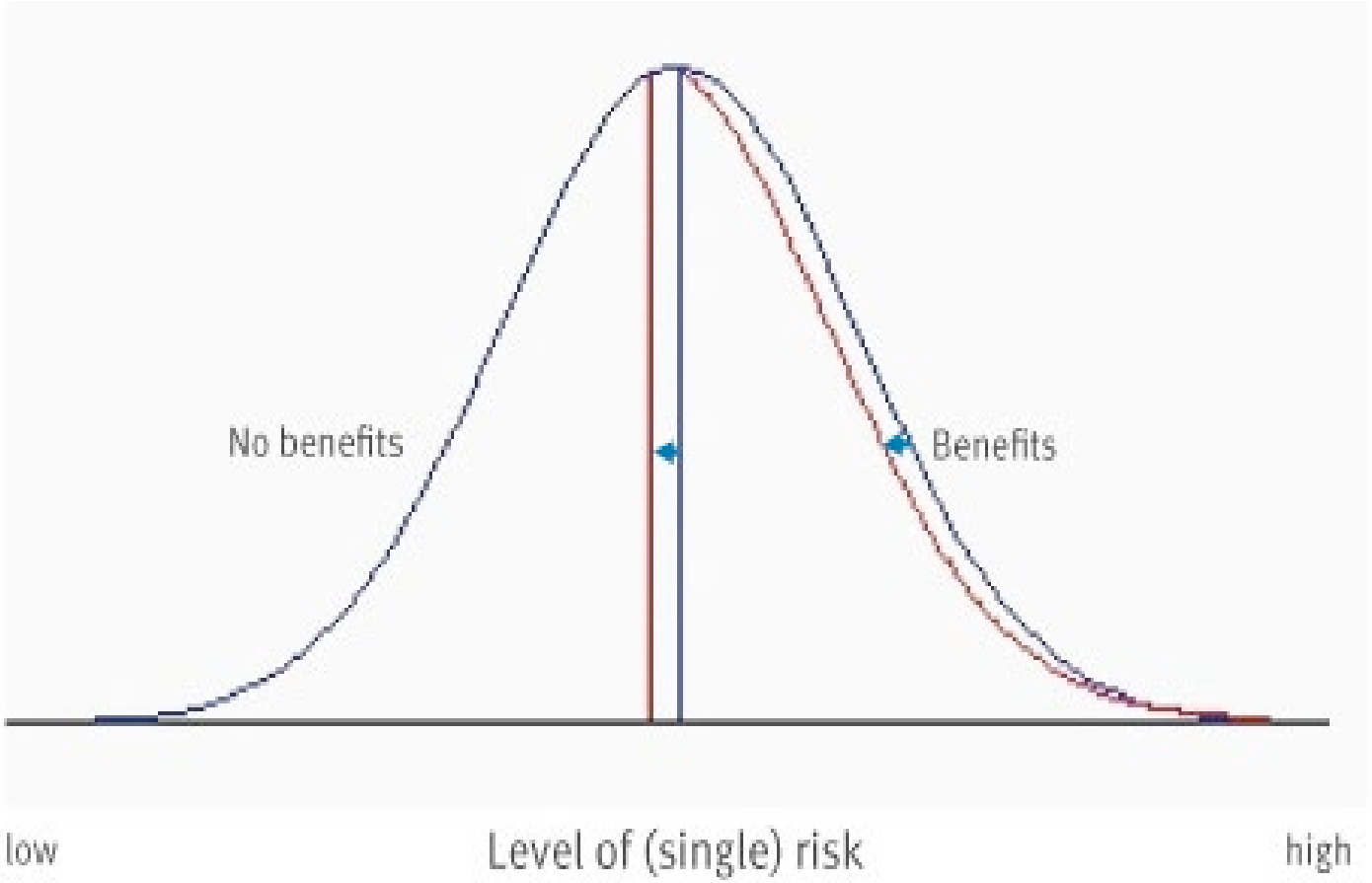
Classification of Preventive Interventions

MODEL		FOCUS
MEDICAL	=	STAGE OF DISEASE
SOCIAL SCIENCE	=	TARGET GROUP OF INTEREST

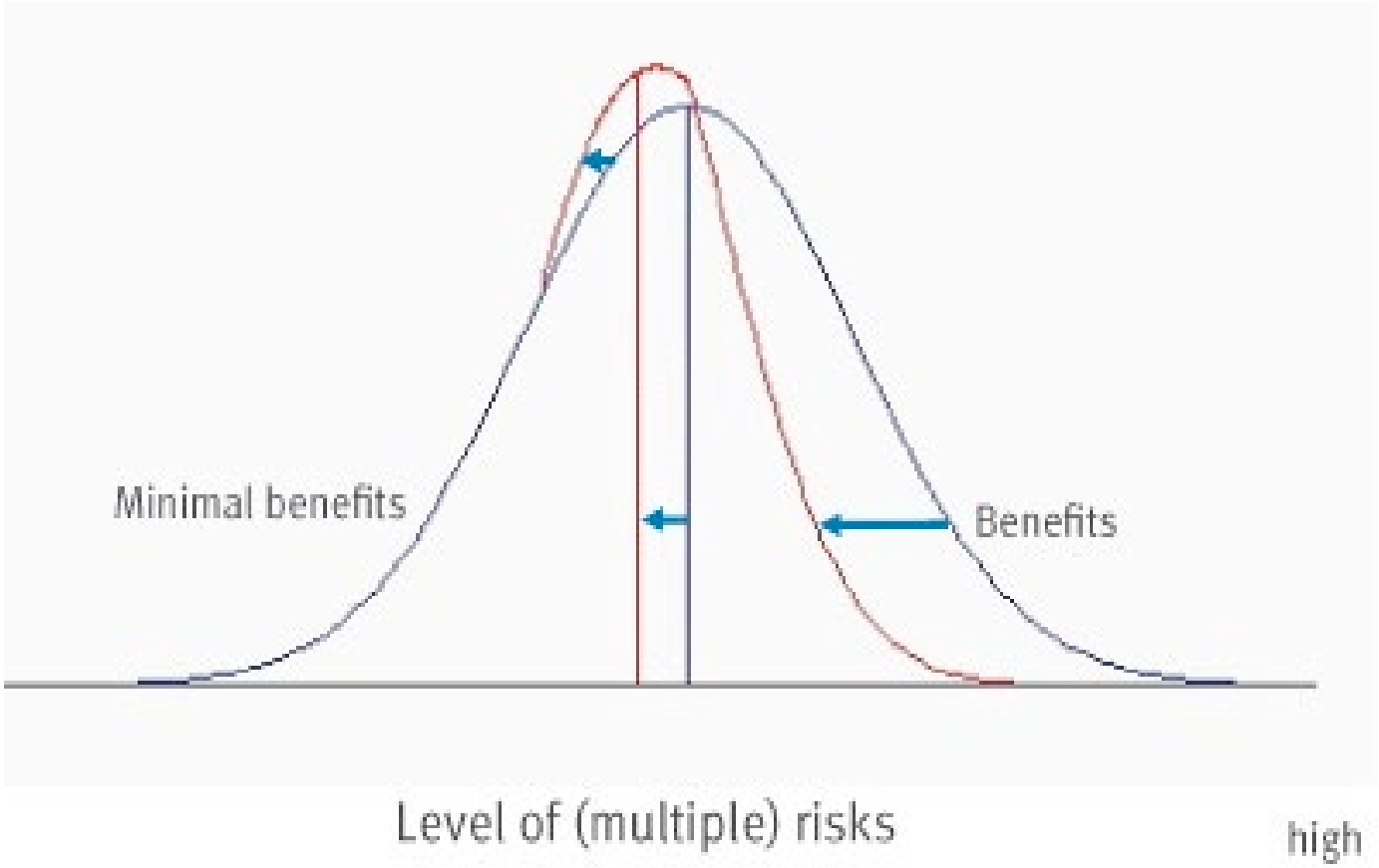
Institute of Medicine's Continuum of Care



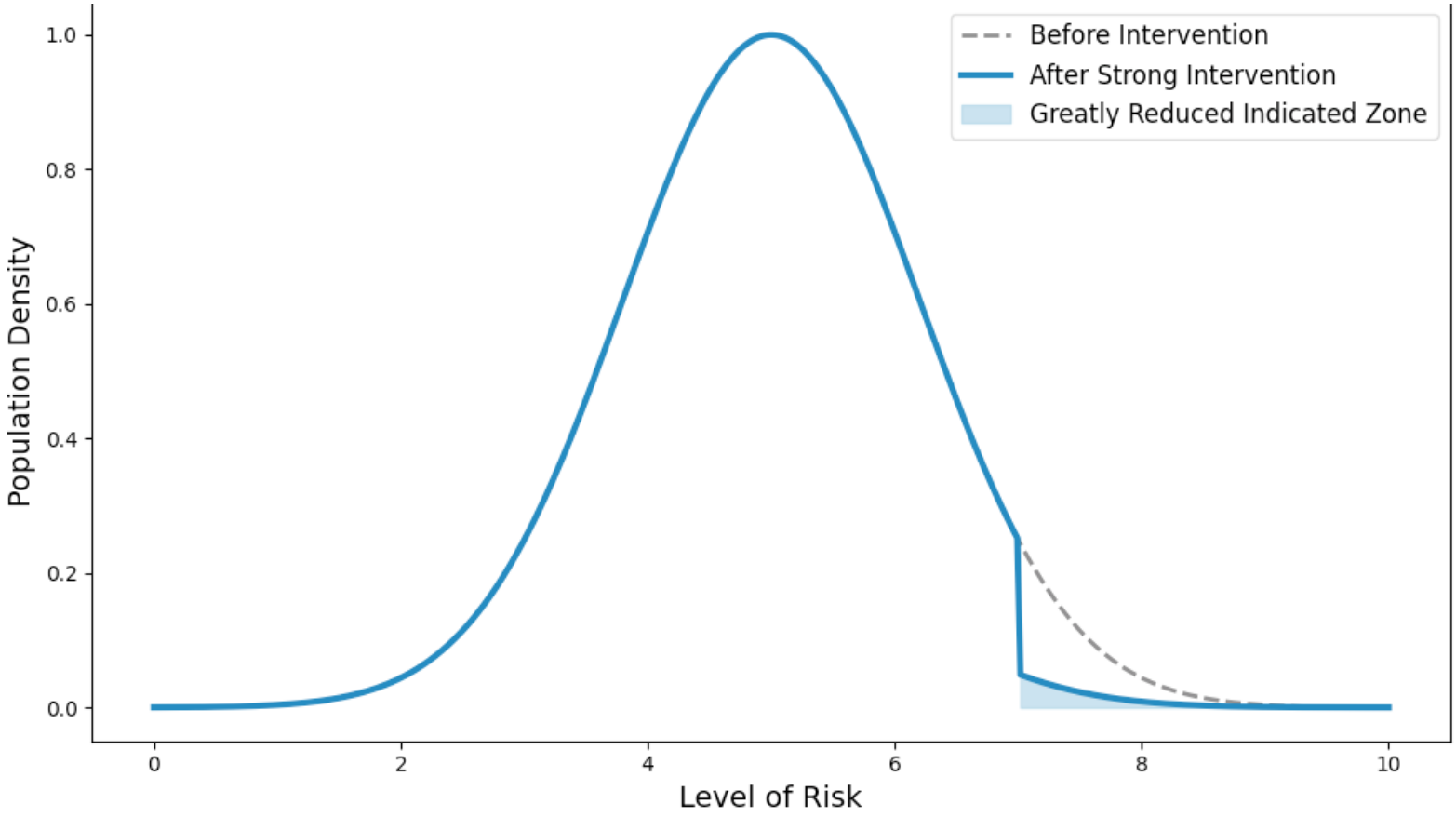
Universal



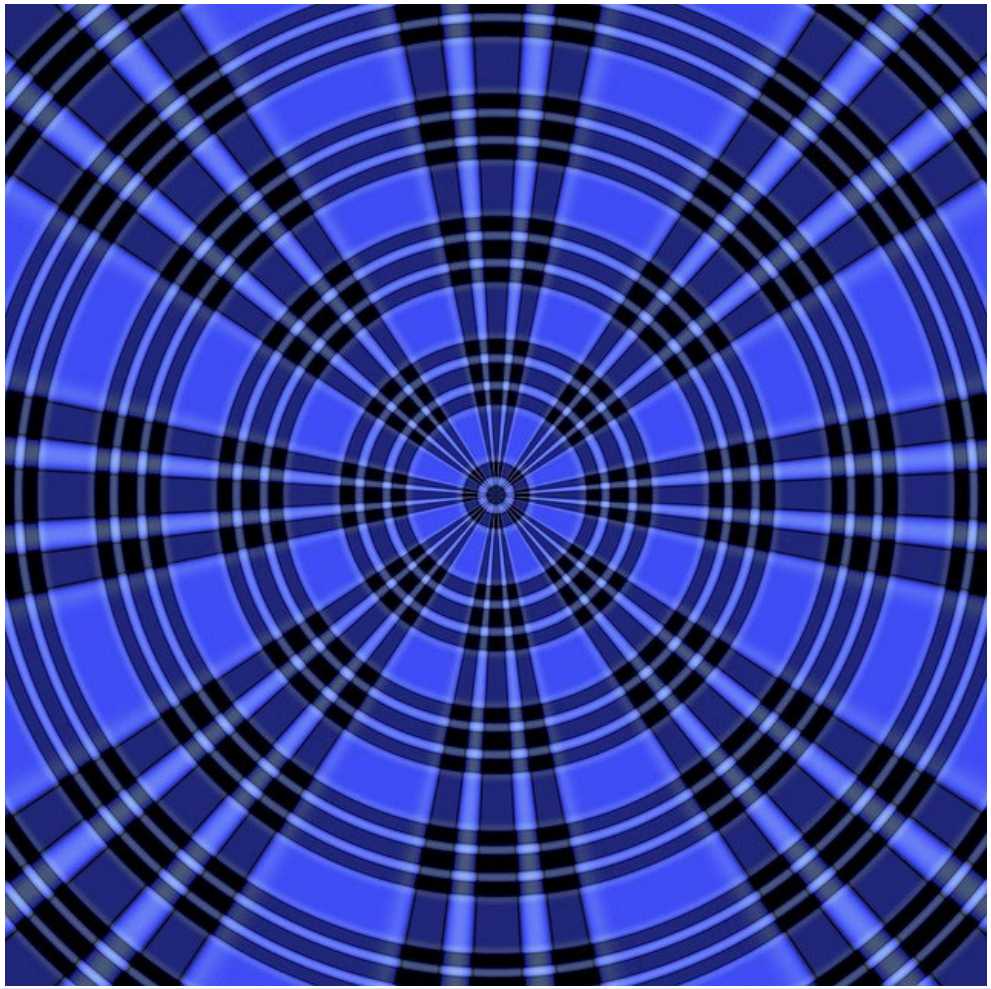
Selective



Indicated


Before Intervention
After Strong Intervention
Greatly Reduced Indicated Zone
Population Density
1.0
0.8
0.6
0.4
0.2
0.0
0
2
4
6
8
10
Level of Risk

Prevention from a Social-Ecological Framework



Family

What Doesn’t Work

Authoritarian Parenting

Permissiveness with Substances

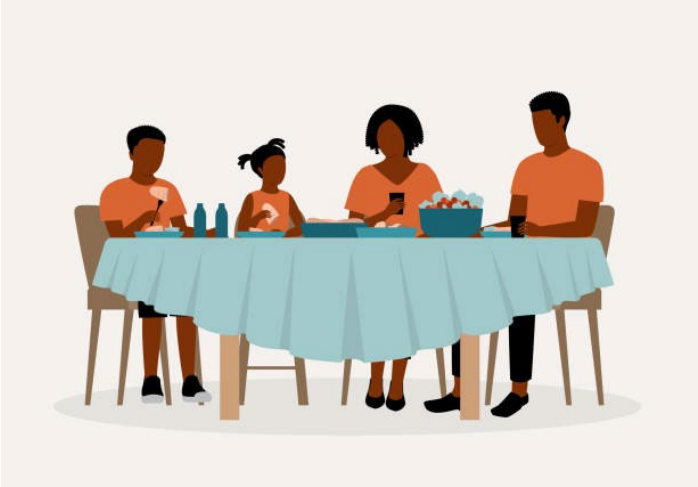
What Does Work

Parental Monitoring

Open Communication

Family Meals

Family Meals and Communication as Protective Factors



Frequent and high-quality family meals are associated with reduced adolescent substance use

Targeted parental communication about substances increases adolescents' negative attitudes and decreases intentions to use, with clear expectations reducing initiation

The SUPPER Project:
Substance Use Prevention Promoted by Eating family meals Regularly

Primary goal: increase time families spend together and promote open and frequent parent-child communication about substance use

SUPPER Intervention

- Theory Based
  - Eco-developmental Theory[1]
- Brief and convenient
- Low time commitment
- Universal; Accessible

Szapocznik, J., & Williams, R. A. (2000). Brief Strategic Family Therapy: 25 years of interplay among theory, research and practice in adolescent behavior problems and drug abuse. *Clinical Child and Family Psychology Review, 3*, 117–134.

Study Objectives

- Conduct randomized controlled trial (RCT)
- Examine efficacy of the SUPPER intervention
- Communication outcomes

Methods

Eligibility

- Parent/guardian with a child in 5th-7th grade at within Massachusetts
- Parent and child lived together at least 50% of the time
- The parent and child could read, speak, and understand English or Spanish
- Parental consent and child assent was given

Recruitment: 2019-2023

- Schools in Massachusetts
- Community-based organizations
- Online (COVID-19)

Study Design

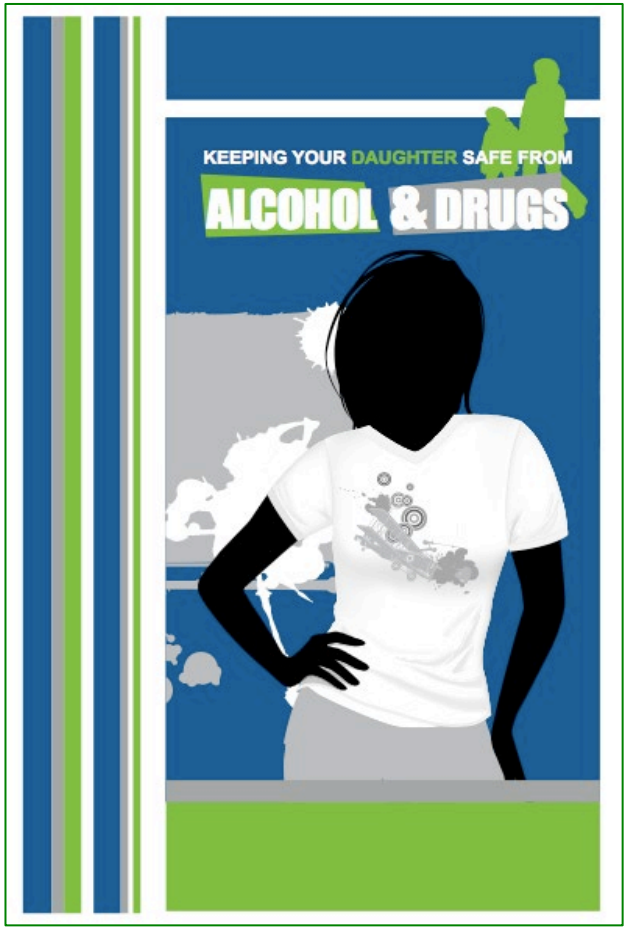
Two-arm randomized controlled trial (RCT) design

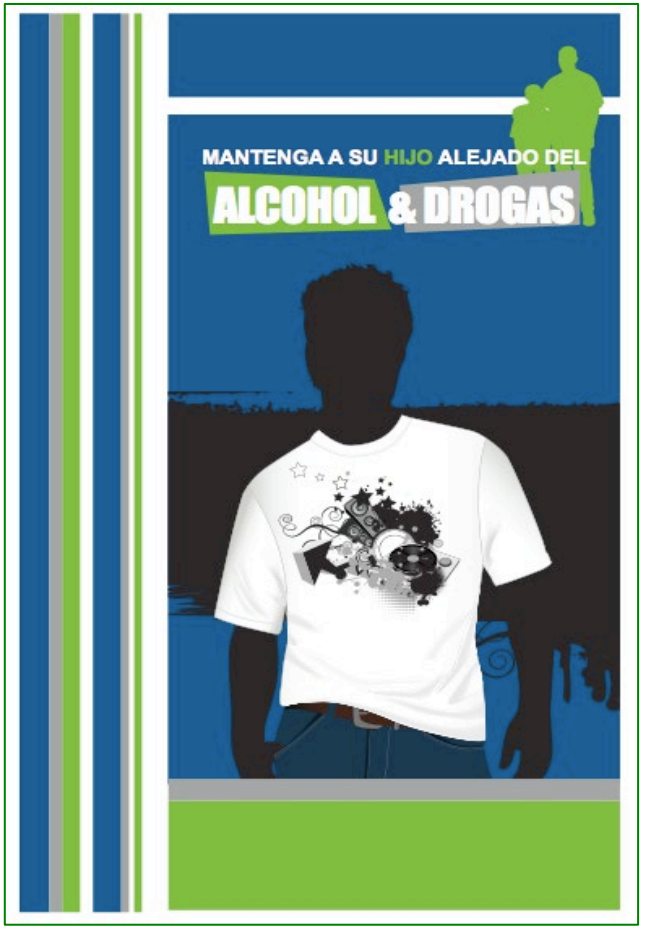
Random allocation with urn randomization: 1:1 to SUPPER intervention or attention control group

Baseline and 3, 6, 12, 18 months follow-up

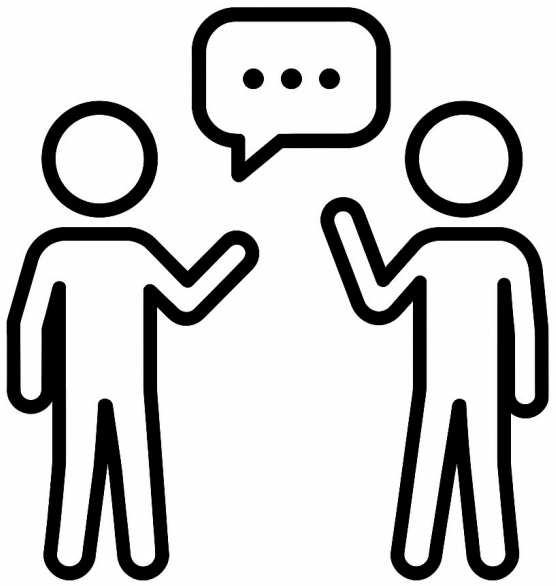
For current study, data collection included parent and child surveys

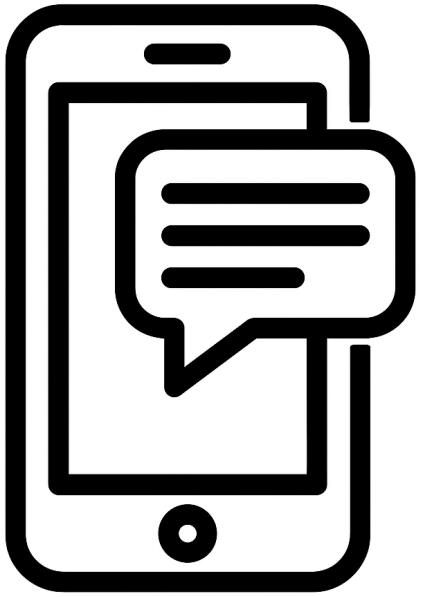
Intervention Components



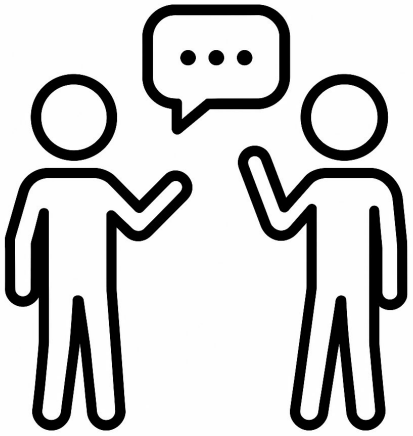


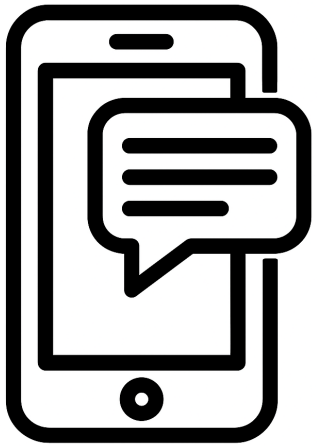
Intervention Components





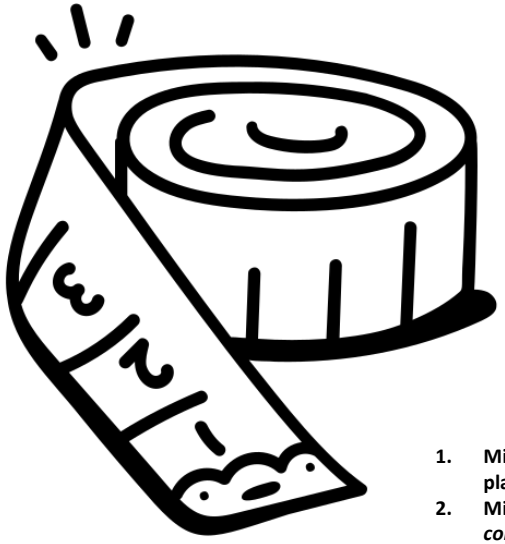
Attention Control Components





Primary Outcomes

- Parent and child report of:
  - Frequency of parent-child conversations about substances (binary)
  - Targeted parent-child communication about substance use (binary)



Also assessed social desirability:

- A validated short form of the Marlowe-Crowne Social Desirability Scale was used to assess social desirability

1. Miller KS, Kotchick BA, Dorsey S, Forehand R, Ham AY. Family communication about sex: What are parents saying and are their adolescents listening? Family planning perspectives. 1998:218-235.
2. Miller-Day M, Kam JA. More than just openness: Developing and validating a measure of targeted parent–child communication about alcohol. *Health communication*. 2010;25(4):293-302.
3. Ballard R. Short forms of the Marlowe-Crowne social desirability scale. Psychological reports. 1992;71(3_suppl):1155-1160.

Targeted Communication

Direct and indirect messages from parents to children about substance use

Beyond "frequency"—focuses on *quality and specificity* of communication

Direct: Warnings, rules, refusal skills, sharing facts

Indirect : Hints, comments during media exposure, personal stories

Data Analysis

- Modified ITT approach
  - Included all eligible participants completing ≥1 post-randomization survey
- Primary analysis
  - Generalized linear models with GEE (binomial distribution, log link, compound symmetry)
- Reporting
  - Prevalence ratios (95% CI) at each time point

Results

Characteristics of the Parents and Children (n=402 dyads)

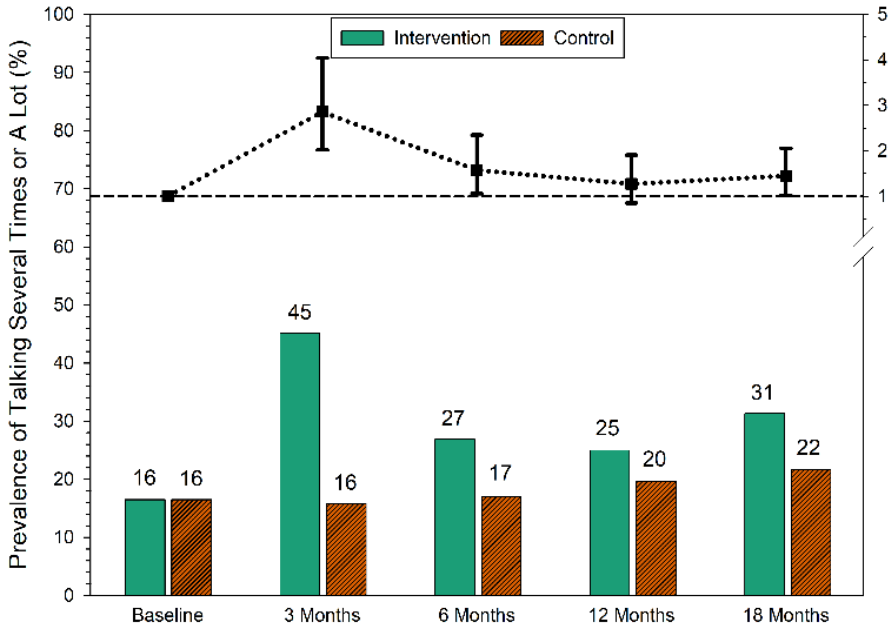
	Parents		Children	
	Intervention (N = 192)	**Control (N = 196)**	**Intervention (N = 192)**	**Control (N = 196)**
Age in years, mean (sd)	42.1 (6.3)	43.3 (6.8)	11.8 (1.1)	11.8 (1.0)
Gender (%)				
Female	88.0	88.3	51.0	52.0
Ethnicity and race, n (%)				
Hispanic or Latino	21.3	20.4	25.0	21.5
White, non-Hispanic	60.9	60.2	54.2	56.1
Black, non-Hispanic	9.9	13.3	10.9	14.3
Asian, non-Hispanic	4.2	3.6	4.7	2.0
Native, non-Hispanic	0.0	0.5	0.5	0.5
Multiracial, non-Hispanic	3.7	2.0	4.7	5.6
Type of parent, n (%)				
Biological	94.8	95.4		
Non-biological	5.2	4.6		

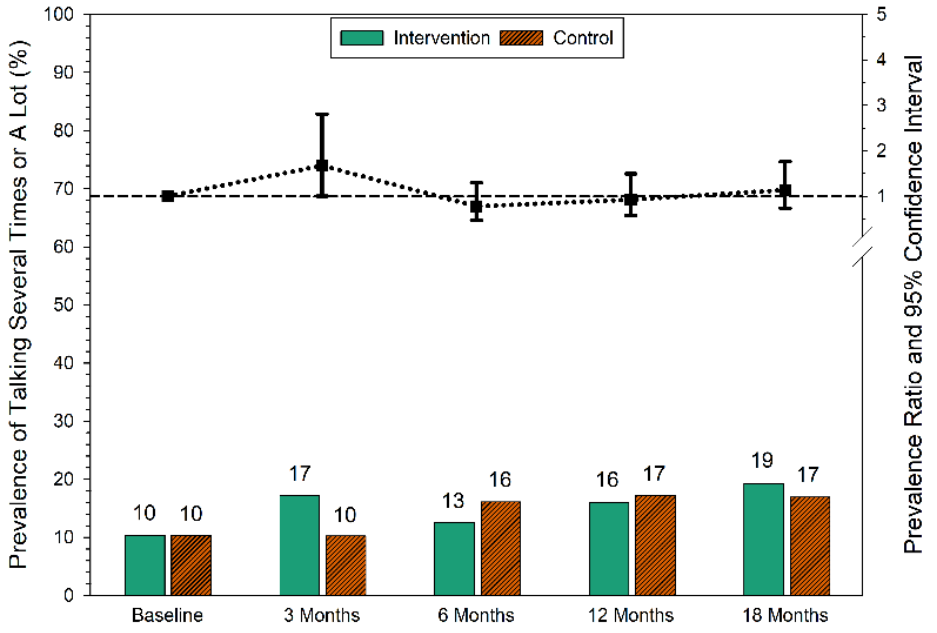
Key Findings: Frequency of Conversations

At 3 months
Parents randomized to the intervention group were 2-3 times as likely to have reported frequent conversations about all substances, compared to the control group.
Children in the intervention group were about 70% more likely to have reported frequent conversations about alcohol and vaping, compared to the control group (and about 30% more likely for other drugs).
At 18 months
For parents, the highest effects were retained for conversations about drinking alcohol (45% more likely).
For children, the highest effects were retained for conversations about vaping (25% more likely).

Frequency of parent-child conversations about alcohol – Parents (L) and Children (R)

Parent vs. child reports: Parents reported higher levels of conversations for all substances than children, a pattern that is also seen in prior research.





1. Skeer, M. R., Eliasziw, M., Sabelli, R. A., Hajinazarian, G., Ryan, E. C., Lee-Bravatti, M. A., Rancaño, K. M., Ialongo, N. S., & Spirito, A. (in press). Parent-child communication results from an efficacy trial of a brief family-based adolescent substance use preventive intervention. *Journal of Adolescent Health*.

At 3 months

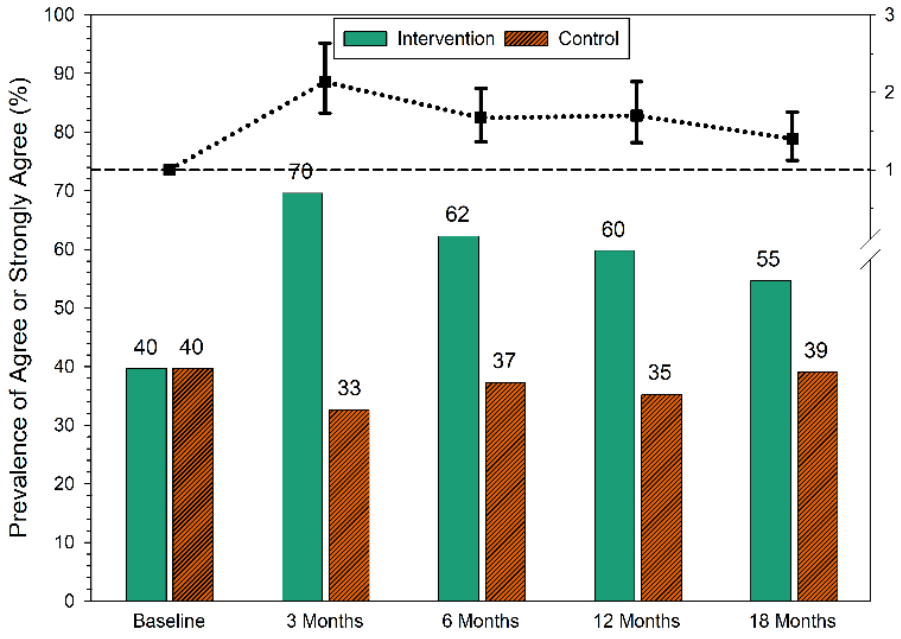
- **For parents,** 9 of 10 items were reported significantly higher in the intervention group (e.g., **more than twice as likely** to give their child rules about drinking and drug use, compared to the control group).
- **For children,** 3 of 10 items were reported significantly higher in the intervention group (e.g., **30% more likely** to report their parents commenting on bad substance use examples on TV, compared to the control group).

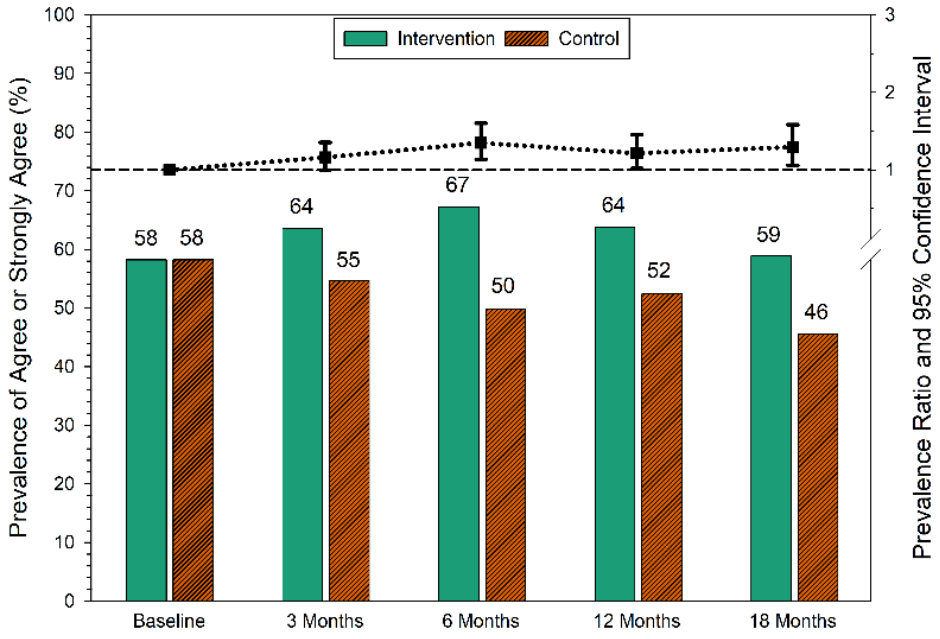
At 18 months

- Effects diminished over time but **remained significantly higher in the intervention group for 2 items** (e.g., parents and children were **40% and 29%,** respectively, **more likely** to report giving/receiving rules about drinking and drug use, compared to the control group).
- Although all the items remained **higher in the intervention group**, not all the differences remained significant

Targeted parent-child communication about alcohol and drugs – Parents (L) and Children (R)

Giving rules to obey about alcohol and drugs





Skeer, M. R., Eliasziw, M., Sabelli, R. A., Hajinazarian, G., Ryan, E. C., Lee-Bravatti, M. A., Rancaño, K. M., Ialongo, N. S., & Spirito, A. (in press). Parent-child communication results from an efficacy trial of a brief family-based adolescent substance use preventive intervention. *Journal of Adolescent Health*.

Discussion

Key Takeaways

- Short- and long-term effects
- Attenuation of effects over time
- Substance-specific effects

Limitations

Limited generalizability

Could not measure substance use outcomes

Strengths

- Comparable groups
- Social desirability check
- Large sample of dyads
- ~ 80% Retention at 18 months

Conclusion and Future Directions

SUPPER is a promising, brief, and low-burden preventive intervention

Associated with increased frequency and quality of parent-child conversations on substances, particularly for alcohol

Future work will focus on assessing the scalability of SUPPER to broader settings and diverse populations

Family Dinner Quality
and
Adolescent Substance Use

Family dinner quality is associated with reduced adolescent alcohol use, but…

Implications for Sexual Risk and HIV Prevention

- Family meals have been associated with reduced sexual risk (including unprotected sex)
  Oliveira-Campos et al., 2013; Skeer and Ballard, 2013
- Mechanisms are through connection and communication
- Parent-based interventions focused on these mechanisms—and sexual communication in particular—have been shown to delay sexual debut and increase safter sex self-efficacy
  Widman et al., 2019

Thank you!

Want to continue the conversation, collaborate, or explore ideas together, please contact me:

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Extra Slides

Moderation Analyses	No significant moderation effects were observed by the child's grade, race/ethnicity, or mode of session (in-person or virtual). However, there were noticeable, though non-significant, differences in effect sizes between some groups. Effects were generally higher in younger grades (5th and 6th) compared to 7th grade.

Characteristics of the Parents and Children

	Parents		Children	
	Intervention (N = 192)	Control (N = 196)	Intervention (N = 192)	Control (N = 196)
Age in years, mean (sd)	42.1 (6.3)	43.3 (6.8)	11.8 (1.1)	11.8 (1.0)
Gender, n (%)				
Female	169 (88.0)	173 (88.3)	98 (51.0)	102 (52.0)
Male	23 (12.0)	23 (11.7)	92 (47.9)	94 (48.0)
Non-binary	-	-	2 (1.1)	0 (0.0)
Ethnicity and race, n (%)				
Hispanic or Latino	41 (21.3)	40 (20.4)	48 (25.0)	42 (21.5)
White, non-Hispanic	117 (60.9)	118 (60.2)	104 (54.2)	110 (56.1)
Black, non-Hispanic	19 (9.9)	26 (13.3)	21 (10.9)	28 (14.3)
Asian, non-Hispanic	8 (4.2)	7 (3.6)	9 (4.7)	4 (2.0)
Native, non-Hispanic	0 (0.0)	1 (0.5)	1 (0.5)	1 (0.5)
Multiracial, non-Hispanic	7 (3.7)	4 (2.0)	9 (4.7)	11 (5.6)
Type of parent, n (%)				
Biological	182 (94.8)	187 (95.4)		
Non-biological	10 (5.2)	9 (4.6)		

Frequency of parent-child conversations about substance use – Parents' reports.

	Baseline		3 months		6 months		12 months		18 months	
	Interv. (n=192)	Control (n=196)	Interv. (n=181)	Control (n=185)	Interv. (n=159)	Control (n=170)	Interv. (n=152)	Control (n=150)	Interv. (n=157)	Control (n=160)
During the past three months, you and your child talked several times or a lot about:										
drinking alcohol										
Prevalence n (%)	28 (14.6)	36 (18.4)	87 (45.1)	29 (15.8)	44 (26.9)	31 (17.1)	41 (25.0)	30 (19.6)	51 (31.3)	36 (21.6)
Prevalence ratio (95% CI)			2.86 (2.02 *to* 4.04)		1.57 (1.06 *to* 2.35)		1.27 (0.85 *to* 1.90)		1.45 (1.02 *to* 2.06)	
P-value	0.31		< 0.001		0.03		0.24		0.04	
using e-cigs or vaping										
Prevalence n (%)	23 (12.0)	26 (13.3)	70 (35.3)	28 (14.7)	35 (21.0)	24 (13.3)	36 (21.8)	26 (17.1)	40 (22.5)	33 (19.4)
Prevalence ratio (95% CI)			2.40 (1.67 *to* 3.45)		1.57 (1.00 *to* 2.47)		1.28 (0.84 *to* 1.93)		1.16 (0.79 *to* 1.71)	
P-value	0.70		< 0.001		0.05		0.25		0.45	
using marijuana										
Prevalence n (%)	16 (8.3)	27 (13.8)	61 (30.9)	27 (13.1)	32 (20.4)	25 (13.0)	33 (19.9)	21 (14.1)	38 (21.5)	30 (17.5)
Prevalence ratio (95% CI)			2.36 (1.62 *to* 3.43)		1.56 (1.02 *to* 2.40)		1.41 (0.93 *to* 2.15)		1.23 (0.83 *to* 1.83)	
P-value	0.09		< 0.001		0.04		0.11		0.30	
smoking cigarettes										
Prevalence n (%)	19 (9.9)	31 (15.8)	79 (39.6)	23 (11.5)	37 (22.4)	20 (10.5)	33 (19.9)	22 (14.1)	33 (18.6)	28 (16.1)
Prevalence ratio (95% CI)			3.45 (2.34 *to* 5.08)		2.13 (1.32 *to* 3.43)		1.41 (0.91 *to* 2.20)		1.16 (0.75 *to* 1.80)	
P-value	0.08		< 0.001		0.002		0.13		0.50	
using other drugs										
Prevalence n (%)	23 (12.0)	23 (11.7)	55 (25.7)	20 (10.4)	29 (17.6)	25 (13.3)	26 (14.8)	16 (11.5)	28 (15.5)	26 (14.9)
Prevalence ratio (95% CI)			2.47 (1.58 *to* 3.86)		1.32 (0.85 *to* 2.07)		1.28 (0.77 *to* 2.13)		1.04 (0.65 *to* 1.64)	
P-value	0.94		< 0.001		0.22		0.33		0.88	

Frequency of parent-child conversations about substance use – Children's reports.

	Baseline		3 months		6 months		12 months		18 months	
	Interv. (n=192)	Control (n=196)	Interv. (n=181)	Control (n=185)	Interv. (n=159)	Control (n=170)	Interv. (n=152)	Control (n=150)	Interv. (n=157)	Control (n=160)
During the past three months, you and your parent talked several times or a lot about:										
drinking alcohol										
Prevalence n (%)	17 (8.8)	23 (11.7)	32 (17.2)	20 (10.2)	20 (12.6)	28 (16.1)	24 (15.9)	26 (17.2)	30 (19.3)	28 (16.9)
Prevalence ratio (95% CI)			1.67 (1.00 *to* 2.81)		0.78 (0.47 *to* 1.30)		0.93 (0.57 *to* 1.49)		1.14 (0.74 *to* 1.76)	
P-value	0.35		0.05		0.34		0.75		0.56	
using e-cigs or vaping										
Prevalence n (%)	12 (6.2)	19 (9.7)	28 (13.8)	17 (8.1)	14 (8.4)	19 (10.2)	21 (13.8)	17 (10.2)	22 (12.6)	18 (10.1)
Prevalence ratio (95% CI)			1.71 (0.98 *to* 2.97)		0.82 (0.45 *to* 1.51)		1.36 (0.80 *to* 2.33)		1.25 (0.72 *to* 2.15)	
P-value	0.21		0.06		0.53		0.26		0.43	
using marijuana										
Prevalence n (%)	14 (7.3)	18 (9.2)	20 (9.1)	17 (8.5)	16 (9.0)	22 (12.8)	20 (11.4)	17 (10.2)	26 (12.9)	22 (12.7)
Prevalence ratio (95% CI)			1.08 (0.61 *to* 1.90)		0.70 (0.41 *to* 1.19)		1.12 (0.65 *to* 1.93)		1.02 (0.64 *to* 1.63)	
P-value	0.50		0.80		0.19		0.67		0.93	
smoking cigarettes										
Prevalence n (%)	14 (7.3)	13 (6.6)	28 (12.5)	21 (10.7)	15 (8.4)	19 (11.7)	20 (11.4)	14 (9.4)	22 (11.5)	18 (10.7)
Prevalence ratio (95% CI)			1.17 (0.70 *to* 1.95)		0.72 (0.41 *to* 1.26)		1.21 (0.68 *to* 2.17)		1.07 (0.63 *to* 1.84)	
P-value	0.80		0.55		0.25		0.51		0.79	
using other drugs										
Prevalence n (%)	17 (8.8)	25 (12.8)	25 (12.2)	19 (9.3)	12 (7.2)	17 (9.6)	17 (10.3)	14 (9.1)	23 (13.0)	19 (10.8)
Prevalence ratio (95% CI)			1.32 (0.77 *to* 2.26)		0.75 (0.39 *to* 1.44)		1.13 (0.61 *to* 2.10)		1.20 (0.70 *to* 2.06)	
P-value	0.22		0.32		0.39		0.69		0.51	

Targeted parent-child communication about alcohol & other drugs – Parents' reports

	3 months		6 months		12 months		18 months	
	Interv. (n=181)	Control (n=185)	Interv. (n=159)	Control (n=170)	Interv. (n=152)	Control (n=150)	Interv. (n=157)	Control (n=160)
During the past three months, you agree or strongly agree that you:								
have warned your child about the dangers of drinking alcohol and using drugs	1.31 (1.18 *to* 1.45)		1.19 (1.05 *to* 1.35		1.14 (0.99 *to* 1.30)		1.10 (0.97 *to* 1.27)	
have talked to your child about how to handle offers of alcoholic drinks and drugs	1.55 (1.32 *to* 1.83)		1.39 (1.18 *to* 1.64)		1.28 (1.07 *to* 1.52)		1.19 (0.99 *to* 1.43)	
have given your child rules to obey about drinking alcohol and using drugs	2.13 (1.73 *to* 2.63)		1.67 (1.36 *to* 2.05)		1.70 (1.35 *to* 2.14)		1.40 (1.12 *to* 1.74)	
have not directly talked with your child about drugs and alcohol use but have given hints that they should not use them	0.61 (0.35 *to* 1.05)		1.09 (0.65 *to* 1.81)		1.22 (0.73 *to* 2.04)		0.68 (0.40 *to* 1.15)	
have lectured or given your child a speech about drinking alcohol and using drugs	1.67 (1.25 *to* 2.25)		1.34 (0.98 *to* 1.82)		1.22 (0.89 *to* 1.66)		1.44 (0.99 *to* 2.10)	
have made a comment to your child about how drinking alcohol and using drugs is bad if a character on TV is drinking or drunk	1.51 (1.21 *to* 1.90)		1.38 (1.11 *to* 1.71)		1.45 (1.13 *to* 1.86)		1.38 (1.06 *to* 1.78)	
have told your child stories of people who drink alcohol, have been drunk, or use drugs	1.25 (1.06 *to* 1.47)		1.20 (1.01 *to* 1.41)		1.07 (0.89 *to* 1.28)		1.11 (0.93 *to* 1.33)	
have told your child you would be disappointed in her/him if they were to drink alcohol or use drugs	1.65 (1.29 *to* 2.10)		1.52 (1.22 *to* 1.89)		1.43 (1.08 *to* 1.89)		1.28 (0.96 *to* 1.70)	
have shown your child information on the web, TV, or in the news about the dangers of drinking alcohol and using drugs	1.64 (1.24 *to* 2.15)		1.51 (1.17 *to* 1.95)		1.50 (1.11 *to* 2.01)		1.25 (0.92 *to* 1.72)	
have asked your child about their thoughts and opinions about drinking alcohol and using drugs	1.65 (1.40 *to* 1.93)		1.20 (1.03 *to* 1.40)		1.20 (1.00 *to* 1.43)		1.10 (0.92 *to* 1.31)	

Targeted parent-child communication about alcohol & other drugs – Children's reports

	3 months		6 months		12 months		18 months	
	Interv. (n=192)	Control (n=196)	Interv. (n=178)	Control (n=185)	Interv. (n=160)	Control (n=165)	Interv. (n=148)	Control (n=150)
During the past three months, I agree or strongly agree that my parent:								
has warned me about the dangers of drinking alcohol and using drugs	1.06 (0.96 to 1.16)		1.11 (1.01 to 1.22		1.15 (1.01 to 1.31)		1.04 (0.90 to 1.20)	
has talked to me about how to handle offers of alcoholic drinks and drugs	1.16 (1.02 to 1.32)		1.13 (0.97 to 1.32)		1.27 (1.09 to 1.47)		1.14 (0.95 to 1.36)	
has given me rules to obey about drinking alcohol and using drugs	1.16 (1.00 to 1.35)		1.35 (1.14 to 1.60)		1.22 (1.02 to 1.45)		1.29 (1.06 to 1.58)	
has not directly talked with me about drugs and alcohol use but has given hints that I should not use them	0.74 (0.52 to 1.04)		0.60 (0.42 to 0.85)		0.88 (0.62 to 1.26)		0.48 (0.31 to 0.75	
has lectured or given me a speech about drinking alcohol and using drugs	1.23 (0.99 to 1.54)		1.45 (1.14 to 1.86)		1.40 (1.09 to 1.80)		1.34 (1.00 to 1.81)	
has made a comment to me about how drinking alcohol and using drugs is bad if a character on TV is drinking or drunk	1.28 (1.02 to 1.61)		1.23 (0.94 to 1.60)		0.92 (0.70 to 1.21)		0.99 (0.73 to 1.34)	
has told me stories of people who drink alcohol, have been drunk, or use drugs	1.11 (0.84 to 1.46)		0.96 (0.72 to 1.28)		1.27 (0.96 to 1.68)		1.15 (0.87 to 1.53)	
has told me they would be disappointed in me if I were to drink alcohol or use drugs	1.06 (0.85 to 1.32)		1.12 (0.88 to 1.43)		1.39 (1.07 to 1.81)		1.16 (0.88 to 1.53)	
has shown me information on the web, TV, or in the news about the dangers of drinking alcohol and using drugs	1.15 (0.91 to 1.46)		1.14 (0.88 to 1.49)		1.44 (1.10 to 1.88)		1.20 (0.91 to 1.58)	
has asked me about their thoughts and opinions about drinking alcohol and using drugs	1.29 (1.06 to 1.56)		1.21 (0.99 to 1.47)		1.33 (1.06 to 1.67)		1.24 (0.95 to 1.60)	