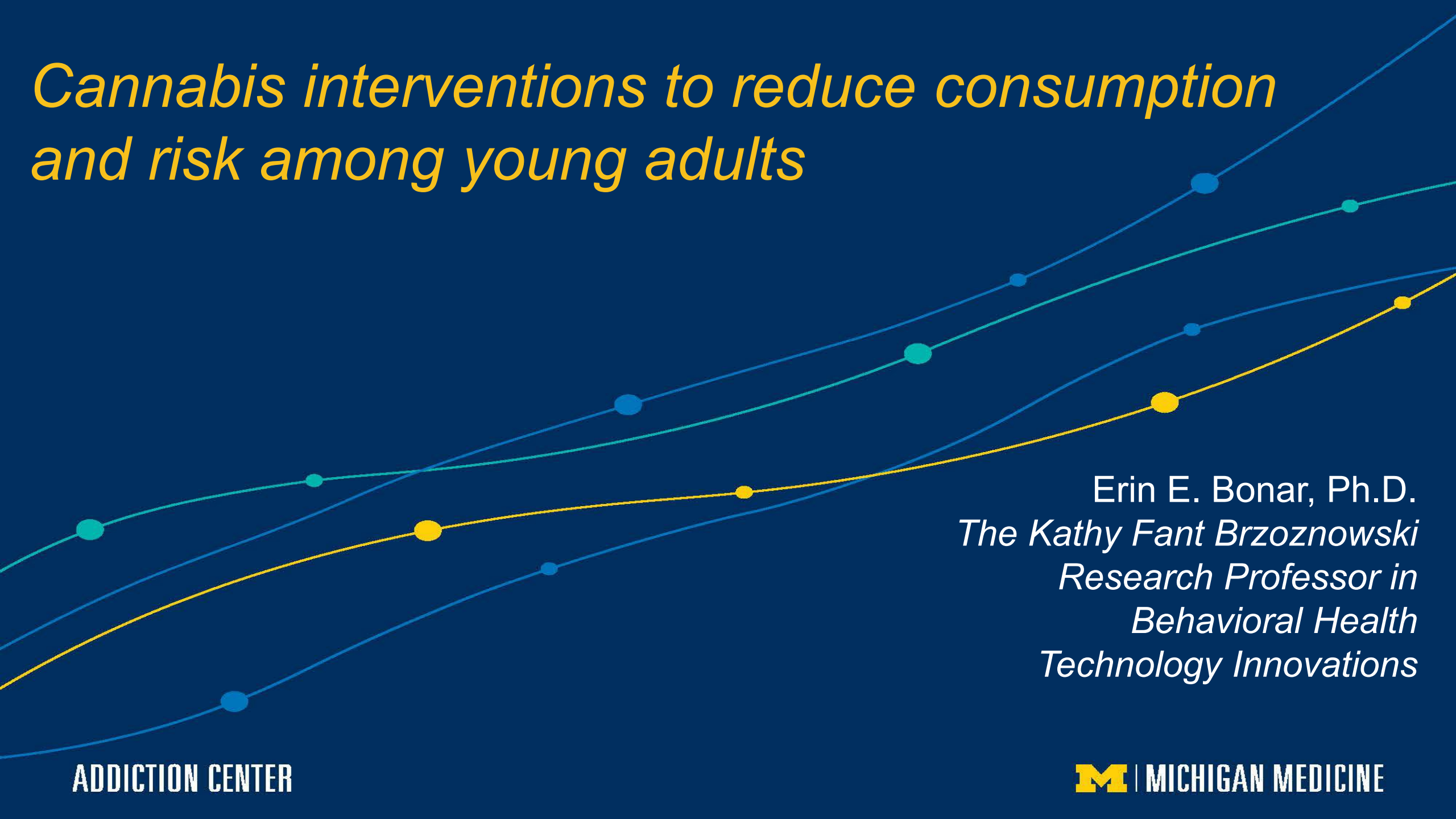


Cannabis interventions to reduce consumption and risk among young adults



Erin E. Bonar, Ph.D.
*The Kathy Fant Brzoznowski
Research Professor in
Behavioral Health
Technology Innovations*

Disclosures

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Collaborators:

- Maureen A. Walton, PhD, MPH
- Frederic C. Blow, PhD
- Jason E. Goldstick, PhD
- Sean Young, PhD (UC Irvine)
- José A. Bauermeister, PhD (Penn)
- Patrick M. Carter, MD
- Cheryl A. King, PhD
- Amy S.B. Bohnert, PhD, MHS
- Rebecca M. Cunningham, MD
- Sarah Clark, MPH
- David Hutton, PhD
- Kelley Kidwell, PhD
- Eve Losman, MD
- Sean E. McCabe, PhD, MSW
- Lisa Prosser, PhD, MS
- Terri Voepel-Lewis, PhD, RN
- Kai Zheng, Ph.D. (UC Irvine)

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- Carrie Bourque
- Lyndsay Chapman
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Today's Roadmap

- Background & Context for ED-based Interventions
- Study 1: MI-REACH
- Study 2: Snapcoach
- Study 3: BI+Portal-Based Intervention
- Conclusions/Future Directions

Abbreviations:

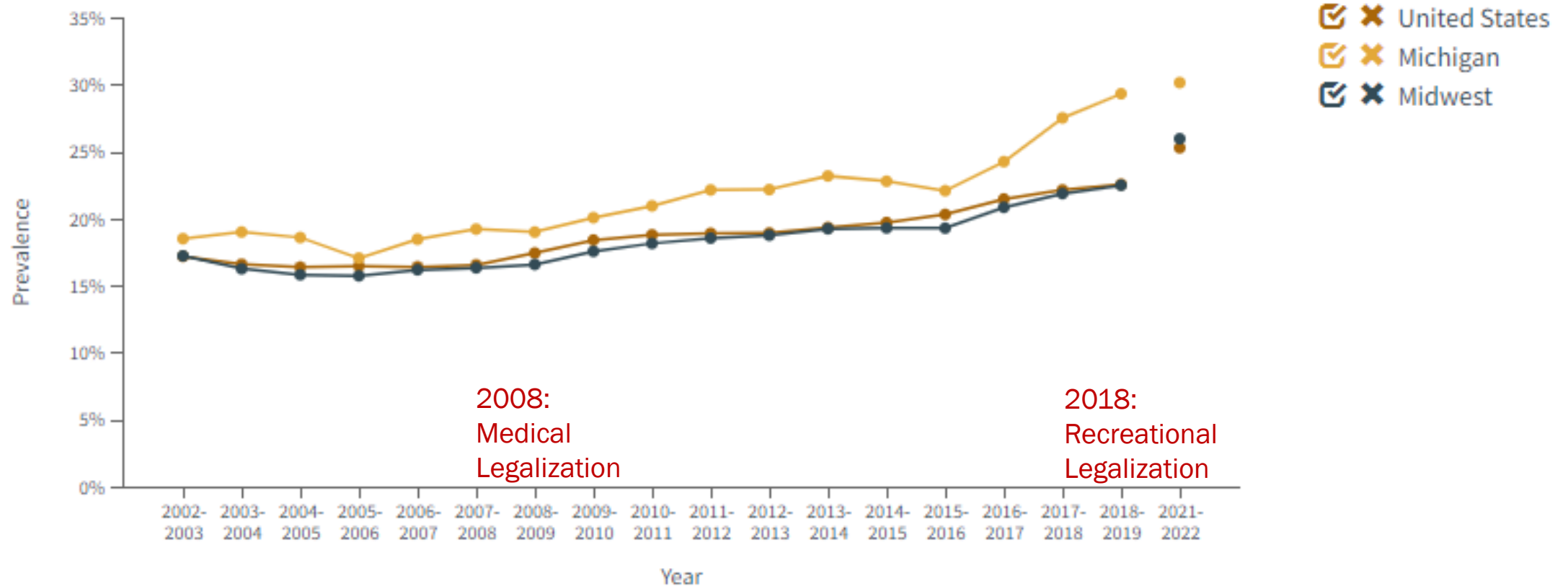
MI = Motivational Interviewing

BI = Brief Intervention

ED = Emergency Department



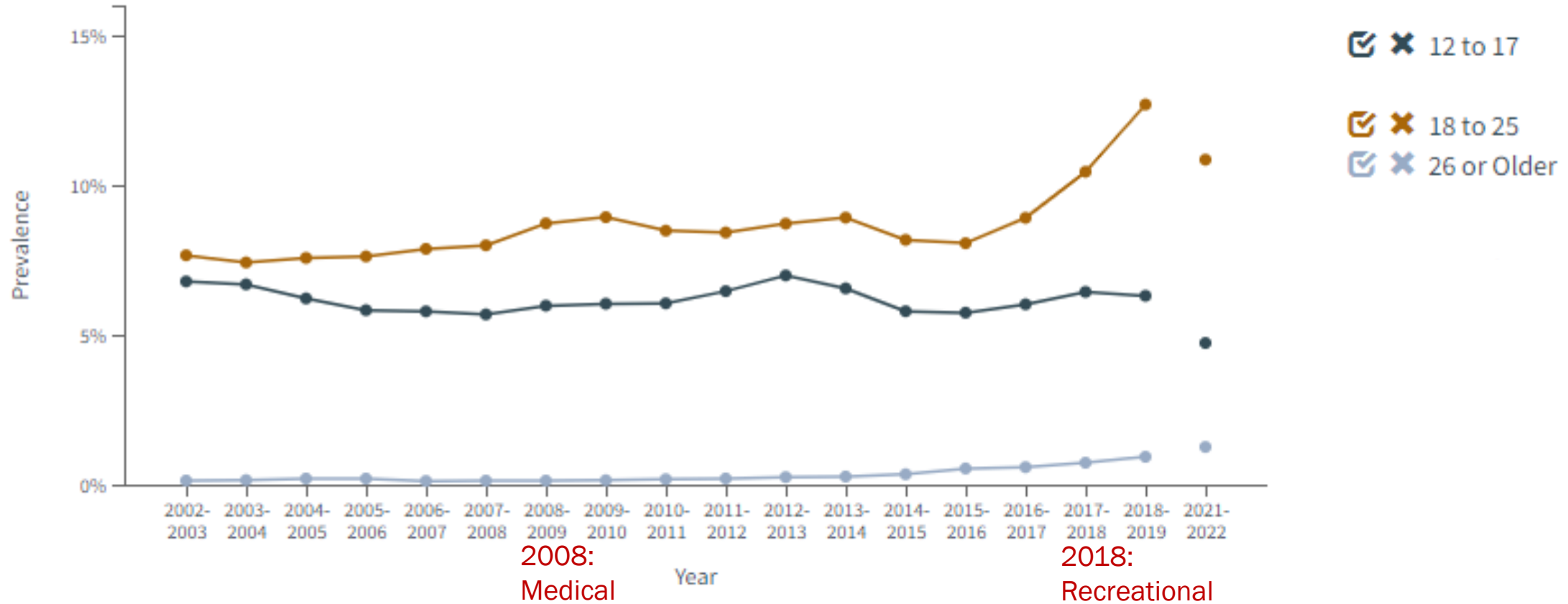
Michigan: Past-Month Cannabis Use in Young Adults



NOTE: Estimates from 2021-2022 are not comparable to estimates from previous years due to changes in NSDUH survey methodology.

Source: National Survey on Drug Use and Health

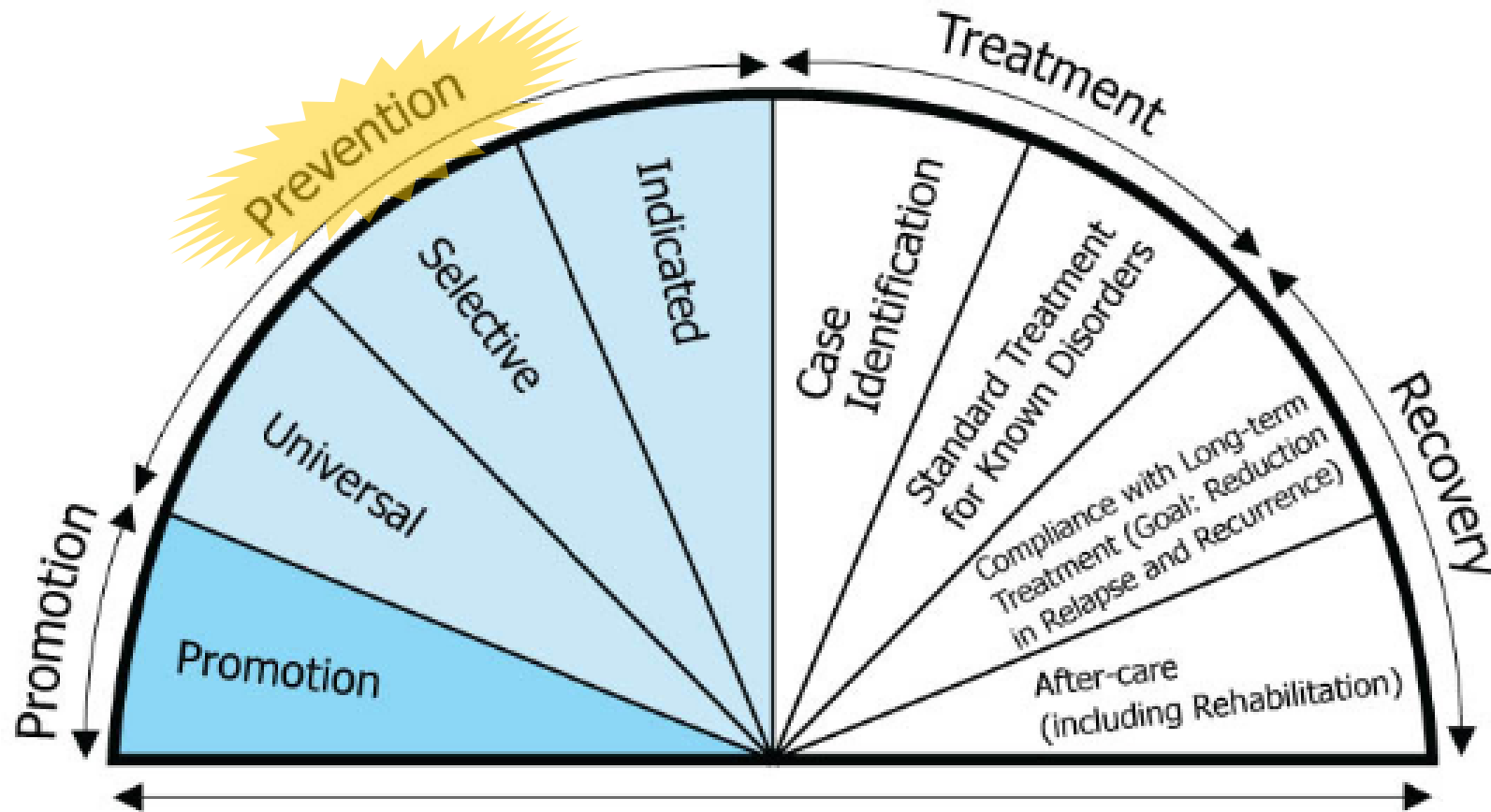
Michigan: Average Annual Rate of Cannabis Initiation



NOTE: Estimates from 2021-2022 are not comparable to estimates from previous years due to changes in NSDUH survey methodology.

Source: National Survey on Drug Use and Health

IOM Continuum of Care Model



Reaching Young Adults - Why the ED

- Not all young adults are in educational settings
- Dropoff in primary care engagement during young adulthood
 - Over 130 million ED visits annually; 20 million of those are in young adults
- ED provides an opportunity to reach and intervene with higher risk populations



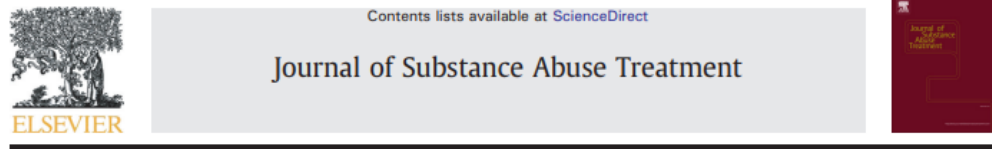
Prior Successful ED Interventions

Maureen A. Walton, MPH, PhD
Stephen T. Chermack, PhD
Jean T. Shope, PhD
C. Raymond Bingham, PhD
Marc A. Zimmerman, PhD
Frederic C. Blow, PhD
Rebecca M. Cunningham, MD

Alcohol Interventions Among Underage Drinkers in the ED: A Randomized Controlled Trial

Rebecca M. Cunningham, MD^{a,b,c,d,e}, Stephen T. Chermack, PhD^{f,g}, Peter F. Ehrlich, MD, MSc^{a,i}, Patrick M. Carter, MD^{a,b,d}, Brenda M. Booth, PhD^h, Frederic C. Blow, PhD^{a,i,k}, Kristen L. Barry, PhD^l, Maureen A. Walton, MPH, PhD^{a,d,l}

Journal of Substance Abuse Treatment 46 (2014) 5–14



Computer-enhanced interventions for drug use and HIV risk in the emergency room: Preliminary results on psychological precursors of behavior change

Erin E. Bonar, Ph.D. ^{a,*}, Maureen A. Walton, M.P.H., Ph.D. ^{a,b}, Rebecca M. Cunningham, M.D. ^{b,c,d}, Stephen T. Chermack, Ph.D. ^{a,c,f}, Amy S.B. Bohnert, M.H.S., Ph.D. ^{a,i}, Kristen L. Barry, Ph.D. ^{a,f}, Brenda M. Booth, Ph.D. ^{g,h}, Frederic C. Blow, Ph.D. ^{a,i}

Drug and Alcohol Dependence 163 (2016) 40–47



Full length article

A pilot randomized clinical trial of an intervention to reduce overdose risk behaviors among emergency department patients at risk for prescription opioid overdose

Amy S.B. Bohnert ^{a,b,c,d,e}, Erin E. Bonar ^a, Rebecca Cunningham ^{c,d,e,f}, Mark K. Greenwald ^g, Laura Thomas ^{a,b}, Stephen Chermack ^{a,b}, Frederic C. Blow ^{a,b}, Maureen Walton ^{a,c}



Effects of a Brief Intervention for Reducing Violence and Alcohol Misuse Among Adolescents

A Randomized Controlled Trial

Drug and Alcohol Dependence 194 (2019) 386–394



Full length article

Alcohol use severity and age moderate the effects of brief interventions in an emergency department randomized controlled trial

Anne C. Fernandez ^{a,*}, Rebecca Waller ^b, Maureen A. Walton ^{a,c}, Erin E. Bonar ^{a,c}, Rosalinda V. Ignacio ^{a,d}, Stephen T. Chermack ^{a,e}, Rebecca M. Cunningham ^{c,f,g,h}, Brenda M. Booth ⁱ, Mark A. Ilgen ^{a,d,e}, Kristen L. Barry ^a, Frederic C. Blow ^{a,d}



ADDICTION

RESEARCH REPORT

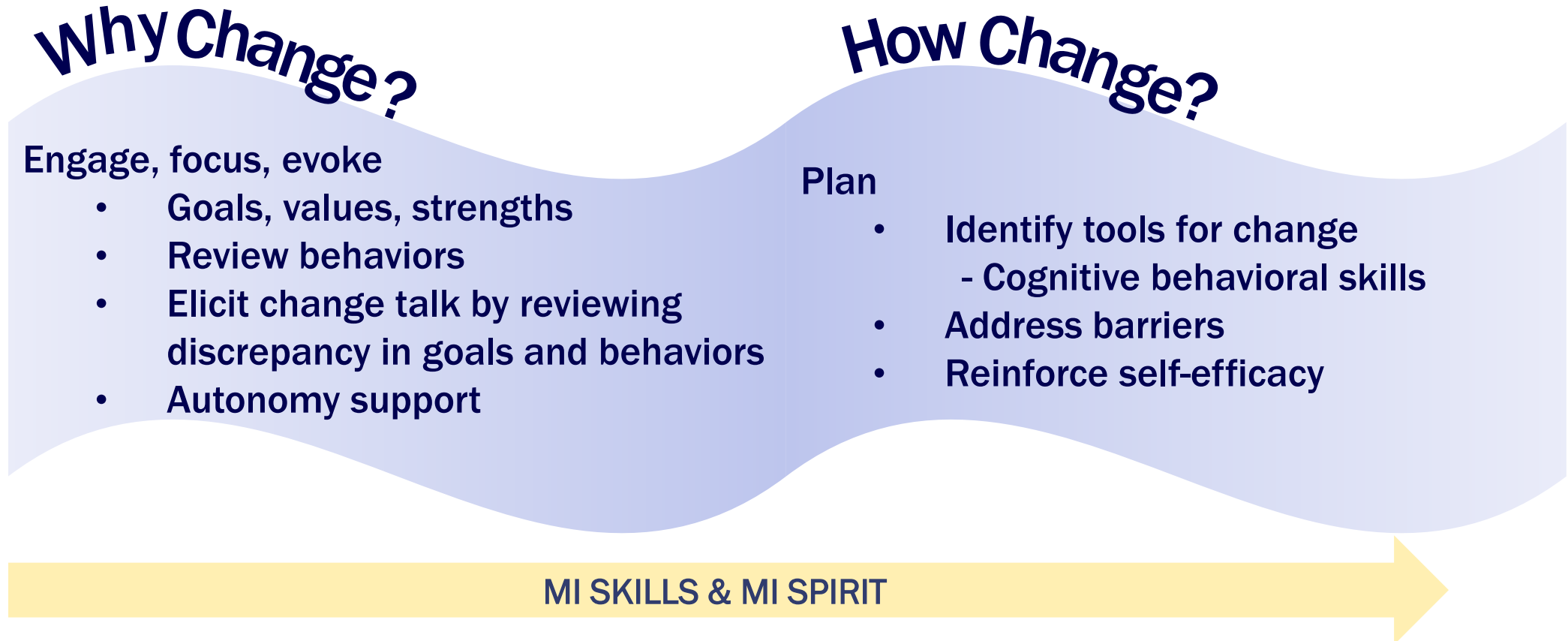
SSA SOCIETY FOR THE STUDY OF ADDICTION

doi:10.1111/add.13773

A randomized controlled trial of brief interventions to reduce drug use among adults in a low-income urban emergency department: the *HealthiER* You study

Frederic C. Blow ^{1,2,6}, Maureen A. Walton ^{1,2}, Amy S. B. Bohnert ^{1,2,6}, Rosalinda V. Ignacio ^{1,6}, Stephen Chermack ^{1,5}, Rebecca M. Cunningham ^{2,3,4}, Brenda M. Booth ^{7,8}, Mark Ilgen ^{1,5,6} & Kristen L. Barry ¹

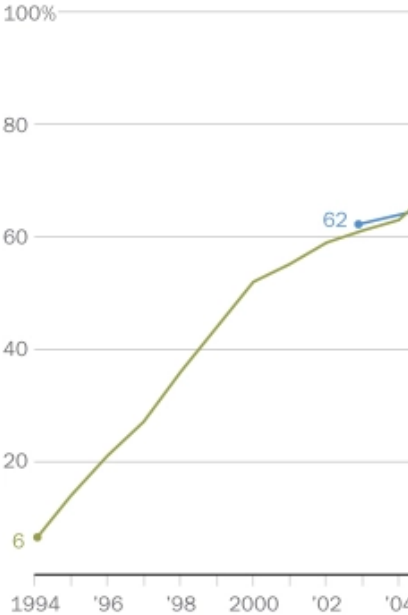
Motivational Interviewing



Median Month of Delivery

Use of mobile devices, social media in U.S. rose sharply in 2010s

% of U.S. adults who say they own or use a mobile device



Source: Survey conducted Jan. 8-Feb. 7, 2016. 2000-2016 are based on pooled analysis of all surveys conducted each year.
PEW RESEARCH CENTER



Study 1: MI-REACH

Drug and Alcohol Dependence 221 (2021) 108625



Contents lists available at [ScienceDirect](#)

Drug and Alcohol Dependence

journal homepage: www.elsevier.com/locate/drugalcdep





Piloting a brief intervention plus mobile boosters for drug use among emerging adults receiving emergency department care

Erin E. Bonar^{a,b,c,*}, Rebecca M. Cunningham^{b,d,e,f}, Emily C. Sweezea^a, Frederic C. Blow^{a,g},
Laura E. Drislane^{a,h}, Maureen A. Walton^{a,b}

^a Addiction Center, Department of Psychiatry, University of Michigan, North Campus Research Complex, 2800 Plymouth Rd. Building 16, Ann Arbor, MI, 48109, USA

^b Injury Prevention Center, University of Michigan, North Campus Research Complex, 2800 Plymouth Rd. Building 10, Ann Arbor, MI, 48109, USA

^c Center for Sexuality and Health Disparities, University of Michigan, 400 North Ingalls Street, Ann Arbor, MI, 48109, USA

^d Department of Emergency Medicine, University of Michigan, North Campus Research Complex, 2800 Plymouth Rd. Building 10, Ann Arbor, MI, 48109, USA

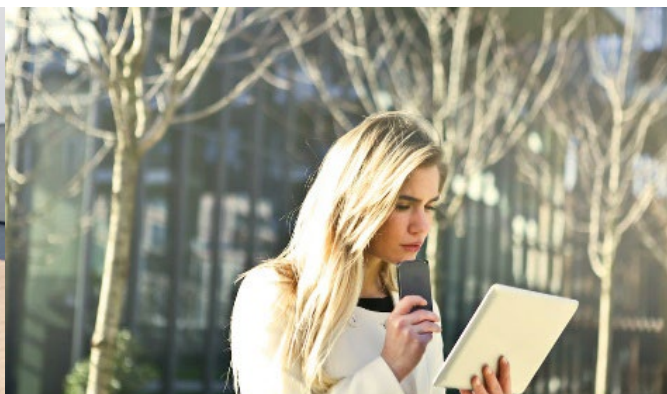
^e Department of Health Behavior and Health Education, School of Public Health, University of Michigan, 1415 Washington Heights, Ann Arbor, MI, 48109, USA

^f Emergency Medicine, Hurley Medical Center, 1 Hurley Plaza, Flint, MI, 48503, USA

^g VA Center for Clinical Management Research, North Campus Research Complex, 2800 Plymouth Rd Bldg 16, Ann Arbor, MI, 48109-2800, USA

^h Department of Psychology and Philosophy, Sam Houston State University, 1901 Avenue I, Huntsville, TX, 77340, USA

NIDA K23 (PI: Bonar) 036008



Setting

- Emergency Department (ED) at Hurley Medical Center
- Flint, Michigan
 - Under-resourced, impoverished; 41% < poverty line
 - Median Income = \$25,000 → federal poverty level for a family of 4
 - Consistently a top city for violent crime
 - High unemployment – 7.7%
 - Diverse population ~ 50% African American
 - Water crisis

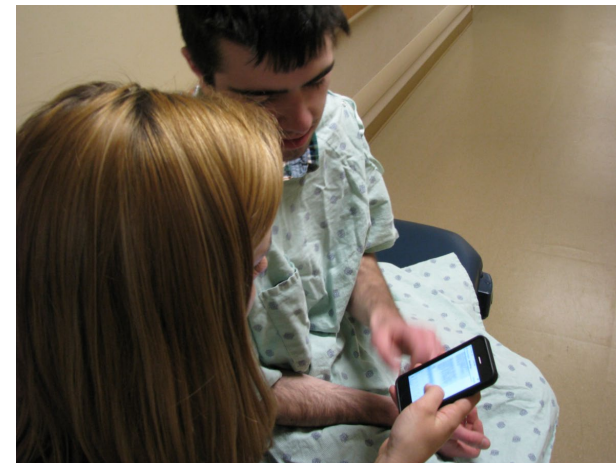


MI-REACH Intervention

Therapist-delivered MI BI
with Computer Guide



4 weeks of MI Booster
Messaging
via Mobile App



Bonar et al. (2017). Daily associations between cannabis motives and consumption in emerging adults. *Drug and Alcohol Dependence*, 178, 136-142.

Blow, F. C., et al. (2017). A randomized controlled trial of brief interventions to reduce drug use among adults in a low-income urban emergency department: the HealthiER You study. *Addiction*, 112(8), 1395-1405.

Bonar, E. E., et al.. (2018). Sexual HIV risk behavior outcomes of brief interventions for drug use in an inner-city emergency department: Secondary outcomes from a randomized controlled trial. *Drug and Alcohol Dependence*, 183, 217-224.

Sections

Therapist Introduction

- Thank for participation, confidentiality, autonomy, use of tablet, asking permission

Explore Strengths & Goals

- Establish rapport; identify targets for affirmations and developing discrepancy

Review Substance Use

- Role of substance use in daily life; identify core motives for use. • Elicit downsides of use.

Substance Use and Relationships

- Review influence of drug use on relationships, sex, hookups. • Elicit-Provide-Elicit for substance use/HIV/STI risk psychoeducation • Identify concerns

Benefits of Change

- Elicit potential benefits to changing use (feelings, relationships, health, work/school/finances, activities/free time) • Readiness for change

Tools/Strategies

- Identify tools/strategies for change related to identified motives

What's Next

- Strategic Summary • Identify one step in the next week toward goals

Computerized Intervention Guide

Therapist: INTRODUCTION

1. Thank PT and affirm their participation

Thank you so much for being a part of our study, we really appreciate it! Your participation will hopefully benefit you in some way and help us discover the best ways to help others in your community.

2. Discuss expectations and plans for session

We'll spend a little more time getting to know you, then talking about two areas of health that young adults tell us are important – sex and substance use.

3. Remind PT of exceptions to confidentiality

Of course, everything we talk about is confidential. As I've said before though, if you mention any thoughts of suicide, homicide, or child or elderly abuse, I may need to tell someone about it in order to get you or someone else the necessary help. We just want to make sure everyone is safe.

4. Explain use of tablet

I'll be using this tablet to guide us through our conversation, and sometimes I'll ask you to take a look and pick some of the options on the screen.

5. Emphasize autonomy

We'll explore your thoughts on these areas, but what you decide to do with any information we discuss is completely up to you. What do you think?



What's important to you? What goals do you have?

Feel better and happier

Success

Feel less stress

Being responsible

Being honest

Be a good parent, caregiver, or role model

Being proud of myself

More time with family/friends/partner

Keep my job or get a job

Do more hobbies activities I like

Attend, finish school

Feel better physically

Have/ save more money

Having good relationships

Independence

Giving my kids/family a better life



Bonar, E. E., et al. (2014). Computer-enhanced interventions for drug use and HIV risk in the emergency room: preliminary results on psychological precursors of behavior change. *Journal of Substance Abuse Treatment*, 46(1), 5-14.

Waller, R., Bonar, E. E., et al. (2019). Exploring the components of an efficacious computer brief intervention for reducing marijuana use among adults in the emergency department. *Journal of Substance Abuse Treatment*, 99, 67-72.

Computerized Intervention Guide

What are the reasons why you might use drugs or drink?
(select **TOP 3** reasons...be sure to enter #s 1-3)

Coping/Feel better/Depression or anxiety/Mood

Enjoyment/Like it/Get high

Social/Something to do with people/Make social gathering more fun

Trying to fit in/Pressured by others

Boredom/Nothing else to do

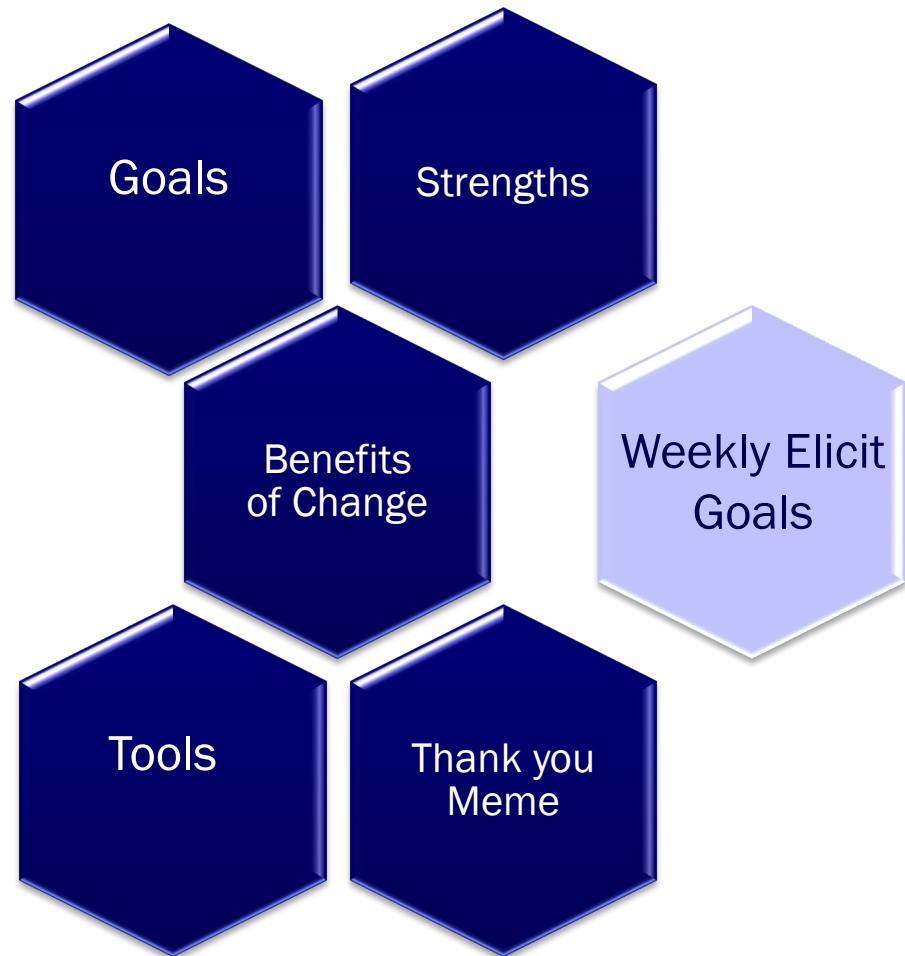
Pain/Sleep/Other physical reason

Other

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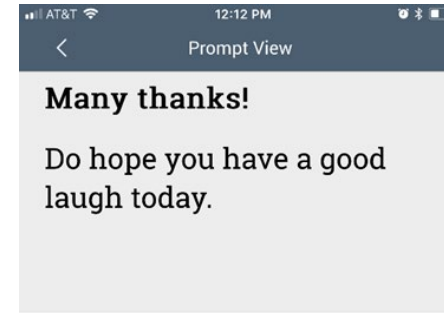
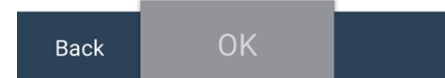
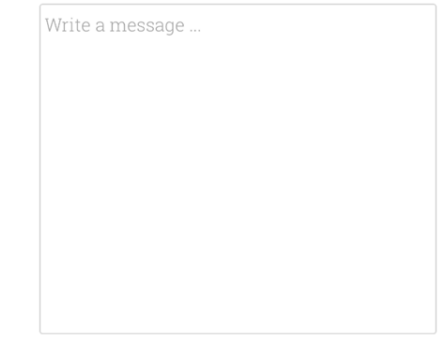
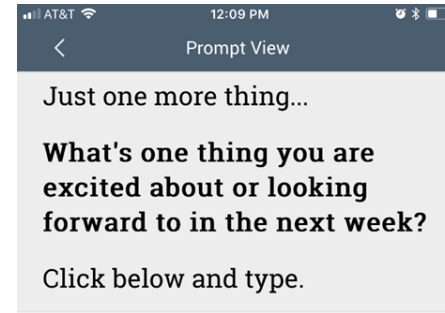
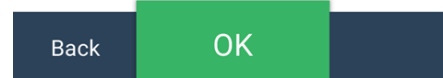
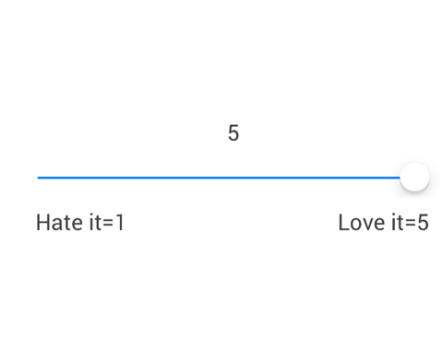
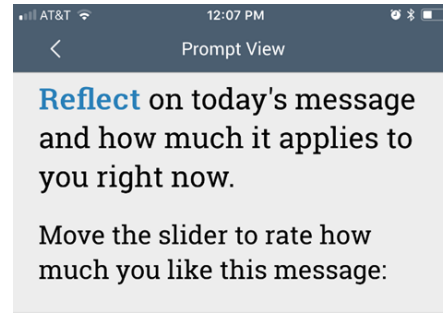
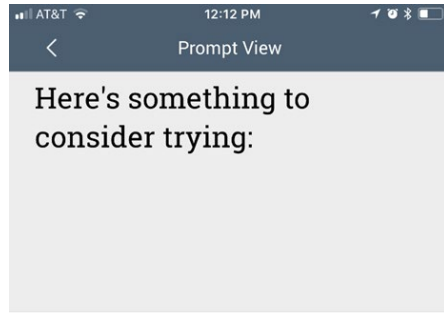
COPING/ FEEL BETTER	Find ways to relax	Distract myself	Remember: feelings and thoughts come and go	Talk to someone I trust	Keep an item in my pocket or a picture on my phone to remind me of what's important	Tell myself something positive ("I can do this!")	Meditate; think calming thoughts; Pray	Other
ENJOYMENT/ GET HIGH	Exercise or play sports	Focus on being a good role model	Avoid triggers where I buy or use drugs	Leave and find something else to do	Avoid activities that may tempt me to use	Do things I enjoy	Pick up my favorite, book, movie, etc.	Other

MI-Based Booster Messaging

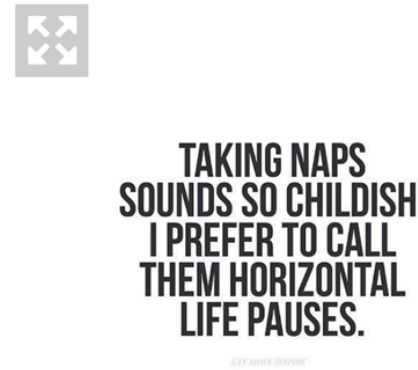
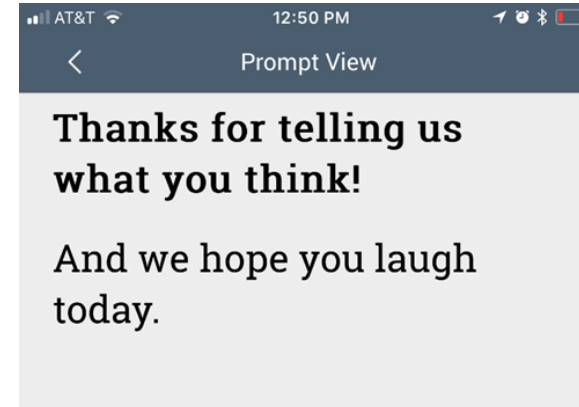
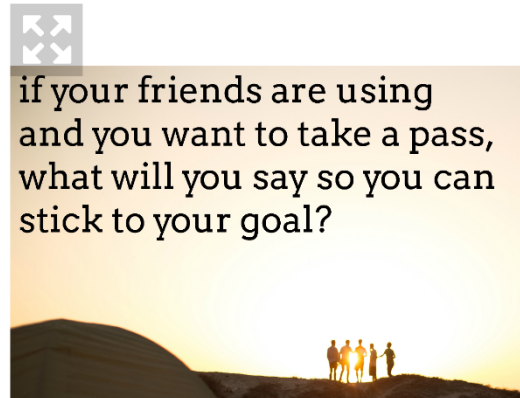
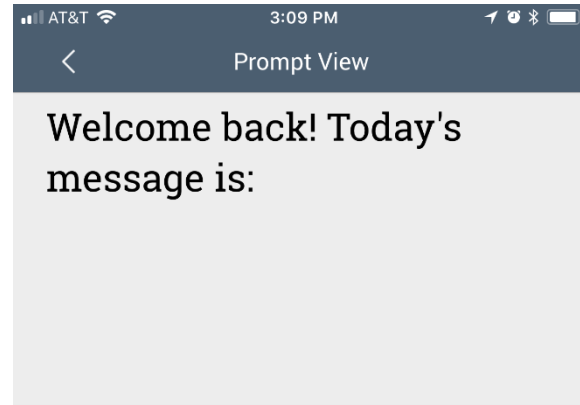


- Tailored to most salient motive from intervention
 - *Coping, Enhancement, Social, Conformity, Boredom, Pain*
 - Daily message → Message rating (\$1) → (Weekly Elicit) → Thank you
- Developed through mTurk and Pilot Testing/Interviews

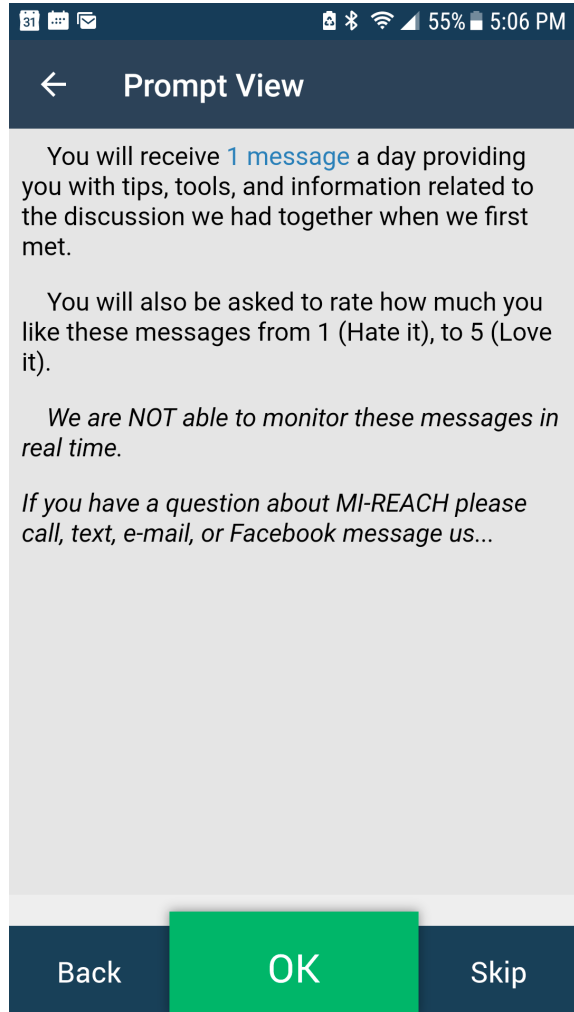
Example Message Sequence



Other Example Messages



Other App Features



31 55% 5:06 PM

← Prompt View

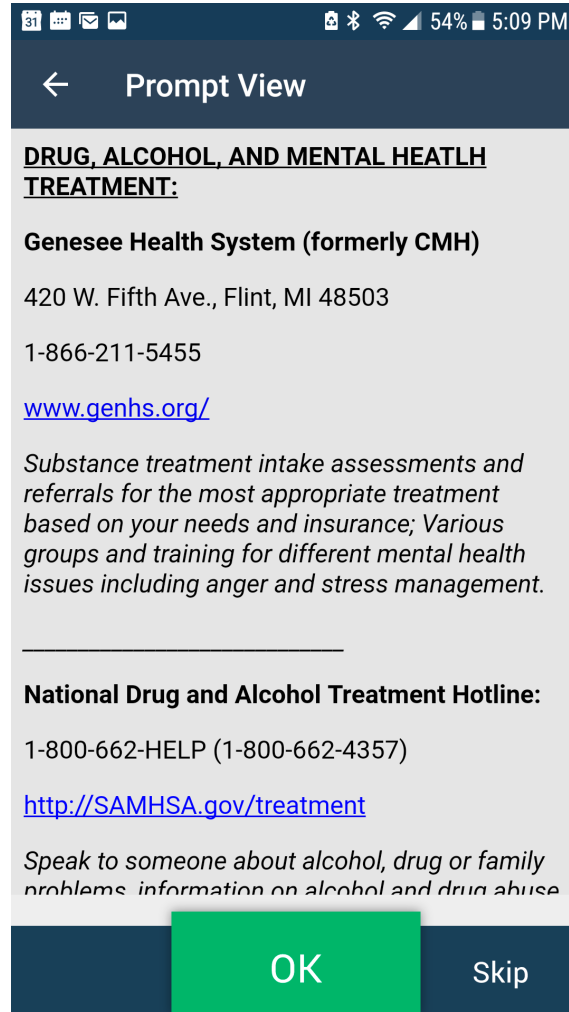
You will receive **1 message** a day providing you with tips, tools, and information related to the discussion we had together when we first met.

You will also be asked to rate how much you like these messages from 1 (Hate it), to 5 (Love it).

We are NOT able to monitor these messages in real time.

If you have a question about MI-REACH please call, text, e-mail, or Facebook message us...

Back OK Skip



31 54% 5:09 PM

← Prompt View

DRUG, ALCOHOL, AND MENTAL HEALTH TREATMENT:

Genesee Health System (formerly CMH)

420 W. Fifth Ave., Flint, MI 48503

1-866-211-5455

www.genhs.org/

Substance treatment intake assessments and referrals for the most appropriate treatment based on your needs and insurance; Various groups and training for different mental health issues including anger and stress management.

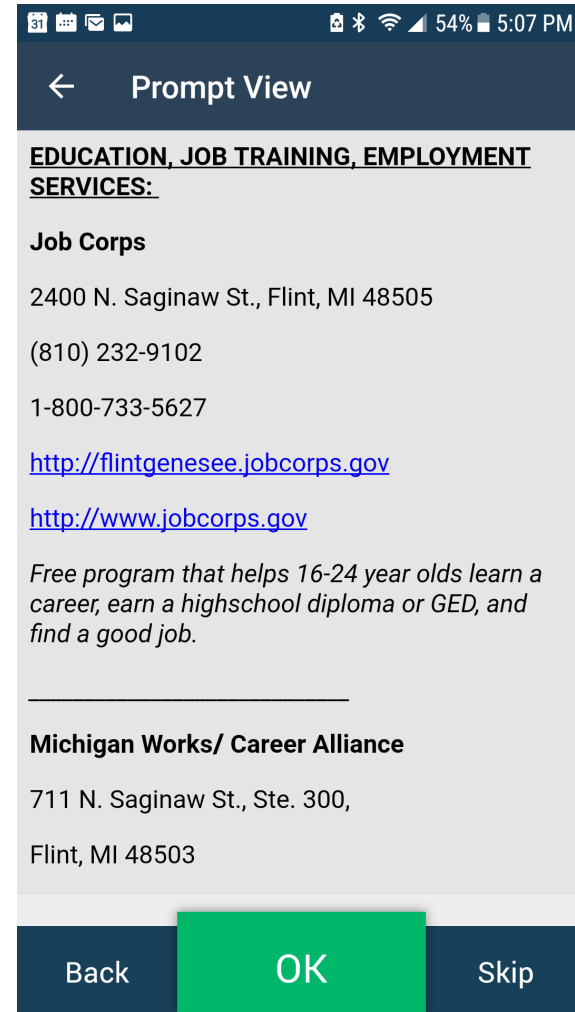
National Drug and Alcohol Treatment Hotline:

1-800-662-HELP (1-800-662-4357)

<http://SAMHSA.gov/treatment>

Speak to someone about alcohol, drug or family problems. information on alcohol and drug abuse

Back OK Skip



31 54% 5:07 PM

← Prompt View

EDUCATION, JOB TRAINING, EMPLOYMENT SERVICES:

Job Corps

2400 N. Saginaw St., Flint, MI 48505

(810) 232-9102

1-800-733-5627

<http://flintgenesee.jobcorps.gov>

<http://www.jobcorps.gov>

Free program that helps 16-24 year olds learn a career, earn a highschool diploma or GED, and find a good job.

Michigan Works/ Career Alliance

711 N. Saginaw St., Ste. 300,

Flint, MI 48503

Back OK Skip

Sample & Characteristics

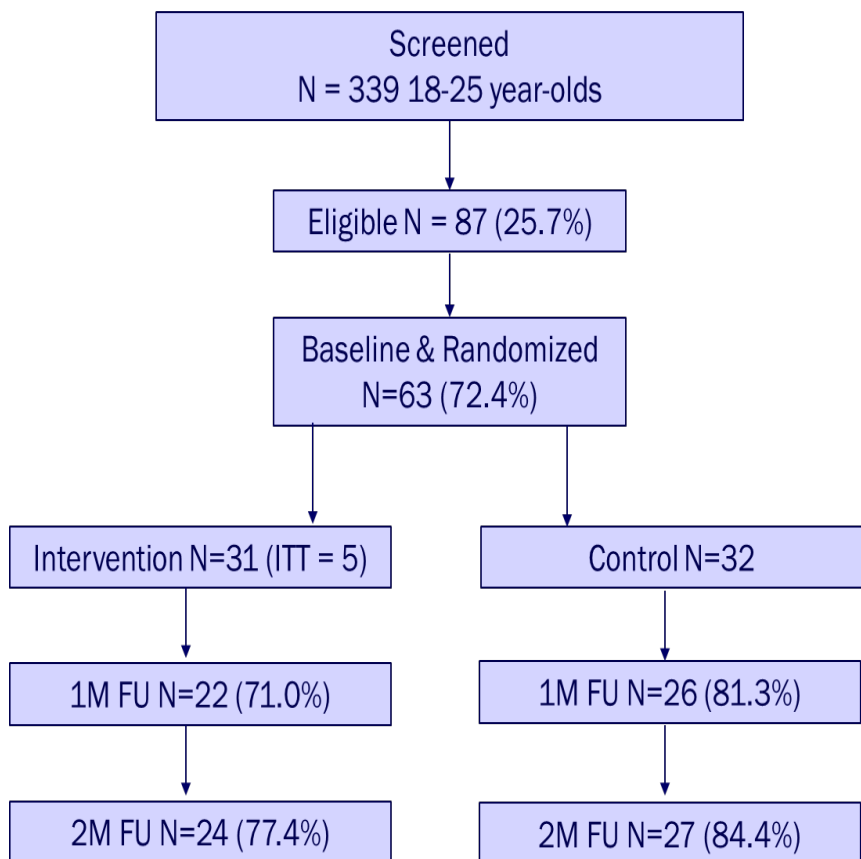


Table 2

Participant demographics and baseline substance use by condition.

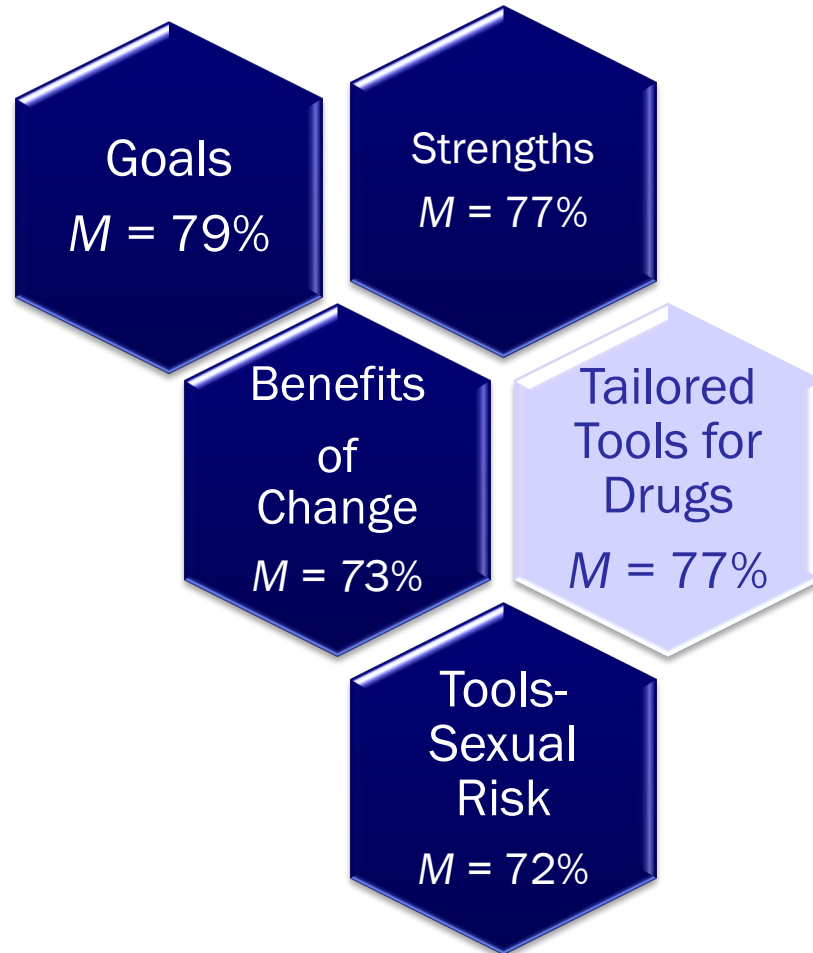
	Total Sample N = 63 Mean (SD) N (%)	Intervention N = 31, 49.2 % Mean (SD) N (%)	Control N = 32, 50.8 % Mean (SD) N (%)
Demographics			
Age (M,SD)	21.70 (2.31)	21.68 (2.34)	21.72 (2.32)
Female sex	42 (66.7 %)	21 (67.7 %)	21 (65.6 %)
Male sex	21 (33.3 %)	10 (32.3 %)	11 (34.4 %)
Black/African American	33 (52.4 %)	14 (45.2 %)	19 (59.4 %)
White	24 (38.1 %)	15 (48.4 %)	9 (28.1 %)
Other	6 (9.5 %)	2 (6.5 %)	4 (12.5 %)
Hispanic	5 (7.9 %)	2 (6.5 %)	3 (9.4 %)
Public Assistance	35 (55.6 %)	17 (54.8 %)	18 (56.3 %)
Baseline substance use and sexual risk			
Total cannabis consumption (joints/month)	56.29 (107.44)	70.87 (107.80)	42.63 (107.00)
Total alcohol consumption (drinks/month)	11.42 (24.71)	17.47 (31.45)	5.75 (14.42)
Substance use days/month (including cannabis and alcohol)	14.29 (9.71)	15.97 (10.01)	9.31 (1.65)
Total alcohol consequences**	1.18 (2.18)	1.97 (2.79)	0.44 (0.98)
Total substance use consequences	3.21 (3.48)	3.87 (3.68)	2.59 (3.22)
% sex days without condom use	93.01 % (20.09)	90.55 % (20.74)	95.31 % (19.51)

** $p < .01$.

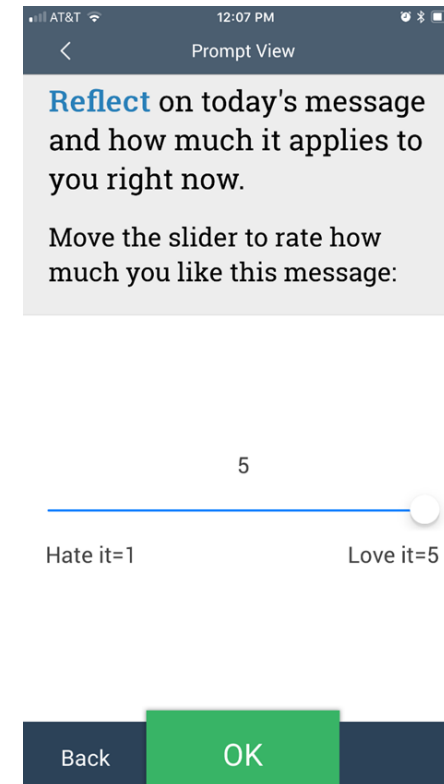
Brief Intervention Acceptability

BI Session Rating (N=24 completed post-test)	% Positive Response
Liked talking with counselor today	79%
Helpful to discuss goals/strengths/values	75%
Helpful to discuss (cannabis) substance use	71%
Helpful to discuss changing substance use	54%
Helpful to discuss one next step for goals	58%

Booster Message Ratings



- 78% of possible ratings completed (467/616)
- Most rated 4 or 5 on this scale:



Booster Messaging Acceptability

Booster Messaging Acceptability (N=22 completed ratings)	% Positive Response
Liked receiving daily messages	77%
Helped focus on what is important	82%
In general, messages were helpful	91%
Substance use messages were helpful	64%
Advice/positive messages were helpful	86%
Not enough messages provided	82%

Take a moment to share one thing that is important to you over the next week:

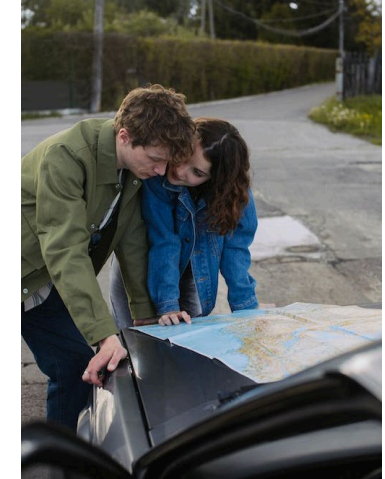


MI-REACH Take Home Messages

- BIs focused on reducing drug use and related consequences were well-received by participants
- Customizable app can be used to deliver MI-informed tailored messaging post-BI, liked by participants
- Drug-using emerging adults will, when prompted, articulate action steps toward goals (verbalized intention) via the mobile app – **potential to reinforce this through 2-way messaging**



Study 2: SnapCoach





NIDA R34 (PI: Bonar) 045712

Addictive Behaviors 147 (2023) 107829

Contents lists available at [ScienceDirect](#)

Addictive Behaviors

journal homepage: www.elsevier.com/locate/addictbeh


A remote brief intervention plus social media messaging for cannabis use among emerging adults: A pilot randomized controlled trial in emergency department patients

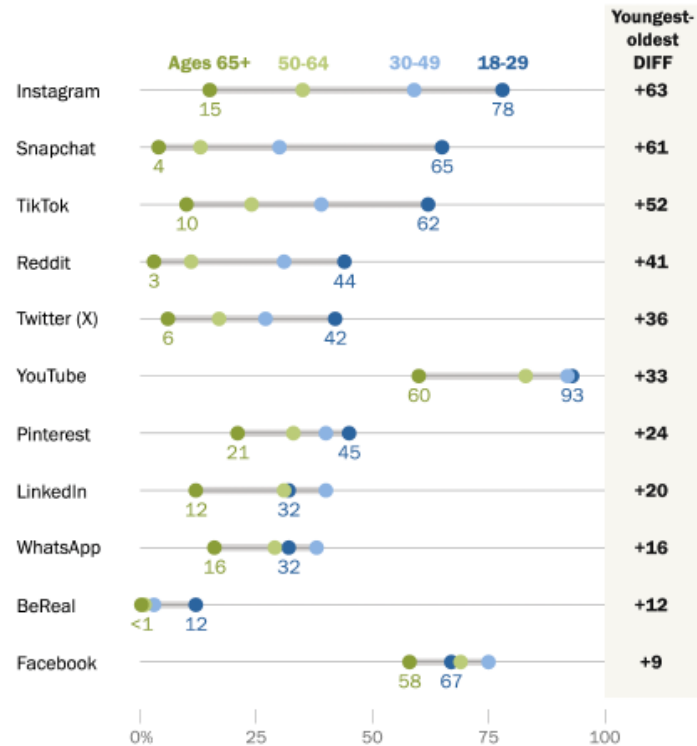
Erin E. Bonar^{a,b,*}, Jason E. Goldstick^{b,c,d}, Chiu Yi Tan^a, Carrie Bourque^a, Patrick M. Carter^{b,c,d,e}, Elizabeth R. Duval^f, Jenna McAfee^g, Maureen A. Walton^{a,b}



Why use social media?

The youngest U.S. adults are far more likely to use Instagram, Snapchat and TikTok; age differences are less pronounced for Facebook

% of U.S. adults who say they *ever* use ...



Note: All differences shown in DIFF column are statistically significant. The DIFF values shown are based on subtracting the rounded values in the chart. Respondents who did not give an answer are not shown.

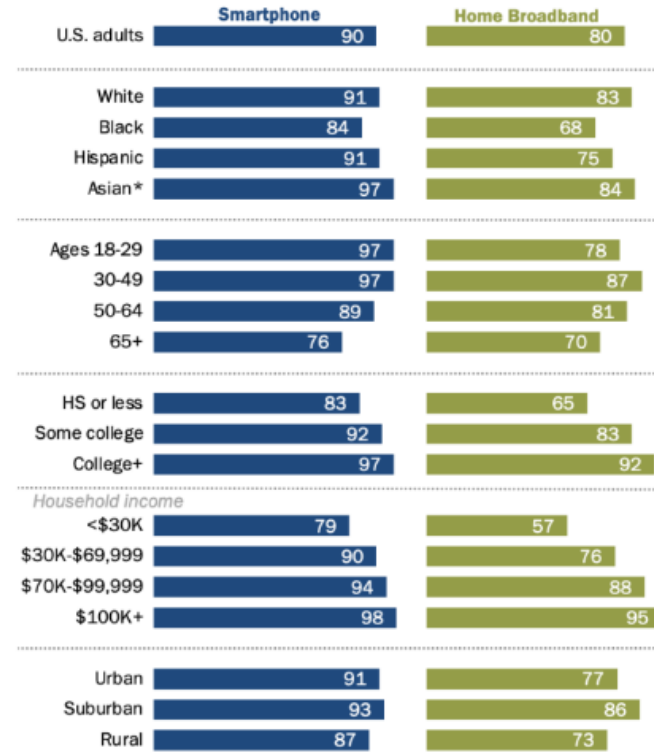
Source: Survey of U.S. adults conducted May 19-Sept. 5, 2023.

"Americans' Social Media Use"

PEW RESEARCH CENTER

Rates of smartphone ownership, broadband subscription vary across groups, including by household income and education

% of U.S. adults who say they own or subscribe to the following



* Estimates for Asian adults are representative of English speakers only.

Note: White, Black and Asian adults include those who report being only one race and are not Hispanic. Hispanic adults are of any race. Those who did not give an answer or who gave other responses are not shown.

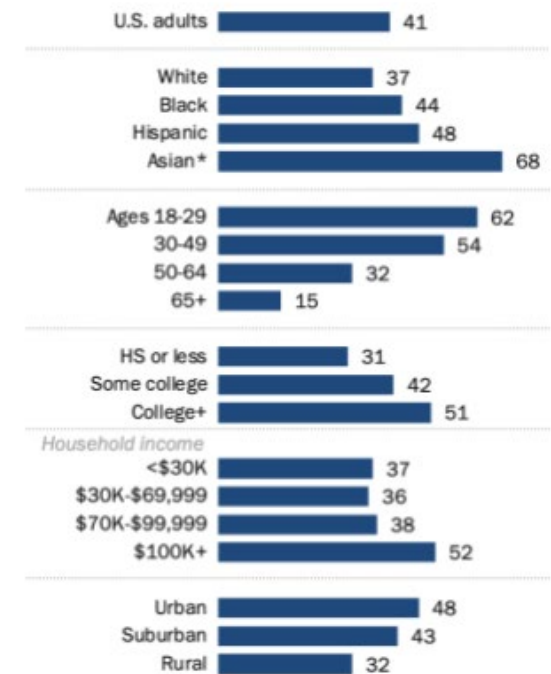
Source: Survey of U.S. adults conducted May 19-Sept. 5, 2023.

"Americans' Use of Mobile Technology and Home Broadband"

PEW RESEARCH CENTER

Majority of adults under 30 say they're online almost constantly

% of U.S. adults who say they use the internet *almost constantly*



* Estimates for Asian adults are representative of English speakers only.

Note: White, Black and Asian adults include those who report being only one race and are not Hispanic. Hispanic adults are of any race. Those who did not give an answer or who gave other responses are not shown.

Source: Survey of U.S. adults conducted May 19-Sept. 5, 2023.

"Americans' Use of Mobile Technology and Home Broadband"

PEW RESEARCH CENTER

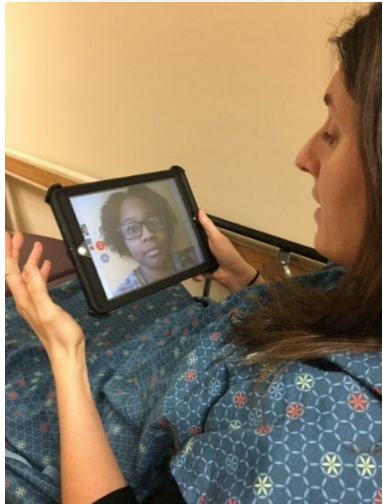
BI + Snapchat Messaging

Remote-Delivered MI BI with Computer Guide



4 weeks of MI Health Coaching via Snapchat

Staff in Office,
Patient in ED



Staff and Patient at Homes*



- Focus testing with N = 20 in Fall 2019
- RCT October 2020 – November 2021
- Follow-ups at 1- and 3-months

Motivational Interviewing Brief Intervention Components

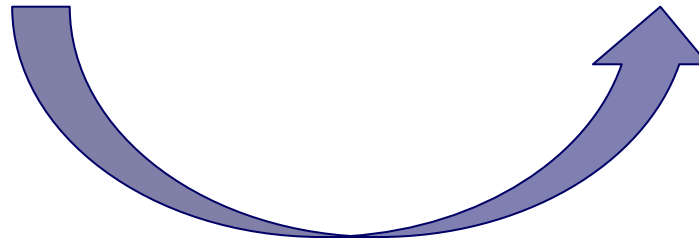
<i>Explore:</i> Introduction	<ul style="list-style-type: none">• Thank participant.• Review confidentiality.• Expectations/session plan.• Autonomy.
<i>Explore:</i> Goals/Values	<ul style="list-style-type: none">• Elicit goals, values, strengths.• Affirm.• Build rapport.
<i>Explore:</i> Substance use	<ul style="list-style-type: none">• Ask permission.• Elicit substance use.• Provide normative feedback.• PT reactions to feedback.
<i>Guide:</i> Reasons for change	<ul style="list-style-type: none">• Benefits of cutting back/quitting, now or in future.• Explore discrepancies with goals.
<i>Choose:</i> Scenarios and Tools	<ul style="list-style-type: none">• Explore how to respond to scenarios: being too high, tolerance, driving, coping, social situations
<i>Choose:</i> Summary/Next Step	<ul style="list-style-type: none">• Review key topics.• Ruler for importance.• Elicit one next step toward goals.

Strengths: What are your best qualities?

- | | |
|--|---|
| <input type="checkbox"/> Confident | <input type="checkbox"/> Healthy / fit / athletic |
| <input type="checkbox"/> Strong-willed / determined | <input type="checkbox"/> Spiritual |
| <input type="checkbox"/> Able to overcome challenges | <input type="checkbox"/> Close with family |
| <input type="checkbox"/> Independent / not easily influenced | <input type="checkbox"/> Loyal friend |
| <input type="checkbox"/> In control of my life | <input type="checkbox"/> Communicate easily |
| <input type="checkbox"/> Reliable / responsible | <input type="checkbox"/> Well-liked by others |
| <input type="checkbox"/> Funny / sense of humor | <input type="checkbox"/> Kind |
| <input type="checkbox"/> Talented / creative | <input type="checkbox"/> Honest |
| <input type="checkbox"/> Smart / quick learner | <input type="checkbox"/> Trustworthy |
| <input type="checkbox"/> Good with technology | <input type="checkbox"/> Good student / worker |
| <input type="checkbox"/> Curious to learn new things | <input type="checkbox"/> Able to ask for help |
| <input type="checkbox"/> Organized | <input type="checkbox"/> Helps care for others |
| <input type="checkbox"/> Problem-Solver | <input type="checkbox"/> Other: _____ |

[< Goals](#) [Opioids >](#)

[HELP](#)



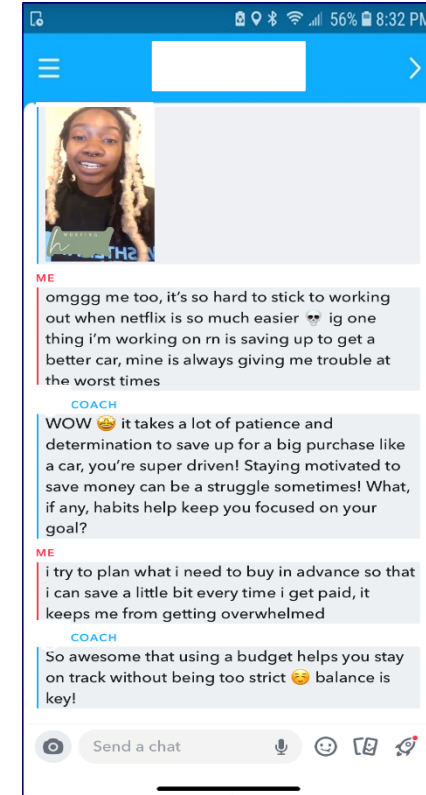
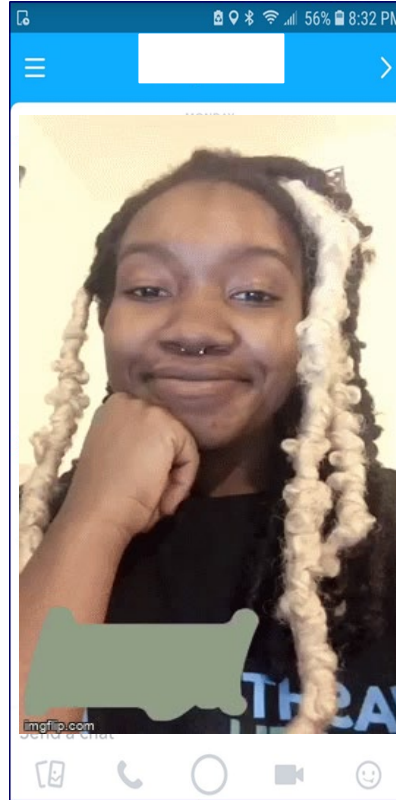
Strengths – Help Screen

- **Intro:** Thank you for sharing with me your goals. Let's take a few moments to talk about things you're good at, or things you've accomplished. Ok?
- **Elicit & Affirm Strengths: What are some of your best qualities? Things you are proud of?**
[If not sure, then show screen: [Take a look](#) at this list and choose 3 things you feel apply to you.]
 - **Question:** What makes you good at ___?
 - **Reflection:** You're proud of (strength) its has helped you to <insert accomplishment>.
 - **Question:** What reasons would others say that you are <insert strength>?
 - **Reflection:** That's great that you've, it really shows that you are.....
 - **Reflection:** These strengths can help you get through some difficult times in life.
 - **Question:** How have these strengths helped you get through tough times or helped you as you are trying to reach your goals of (insert goals)?
- **Summarize & Affirm Strengths in relation to Goals :** You've got a lot of positive qualities. It's great you've seen how <strengths> has helped you through tough times and will help you as you continue moving forward towards your goals of <goals>.
- **Transition:** Next, we are going to talk about your thoughts and experiences with opioids. Ok?

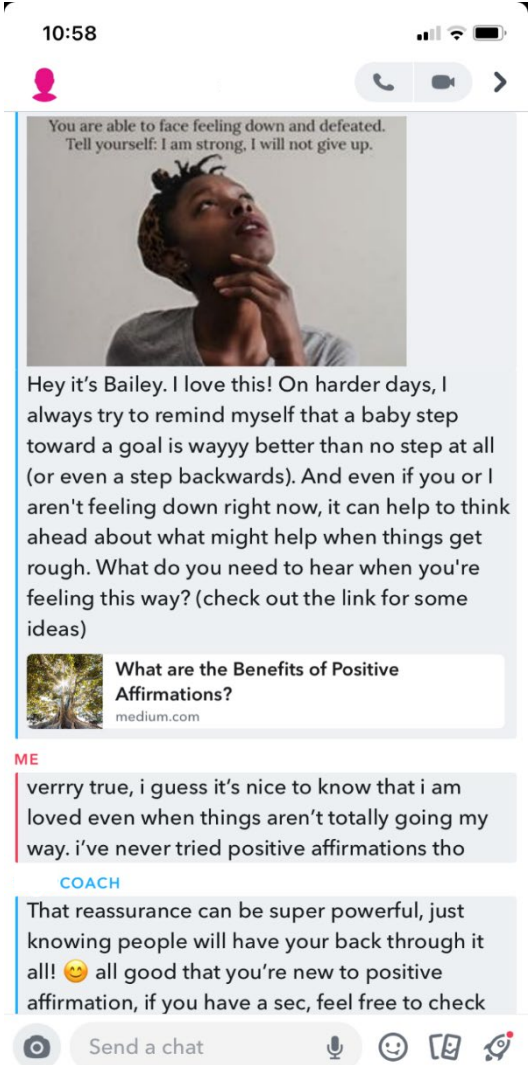
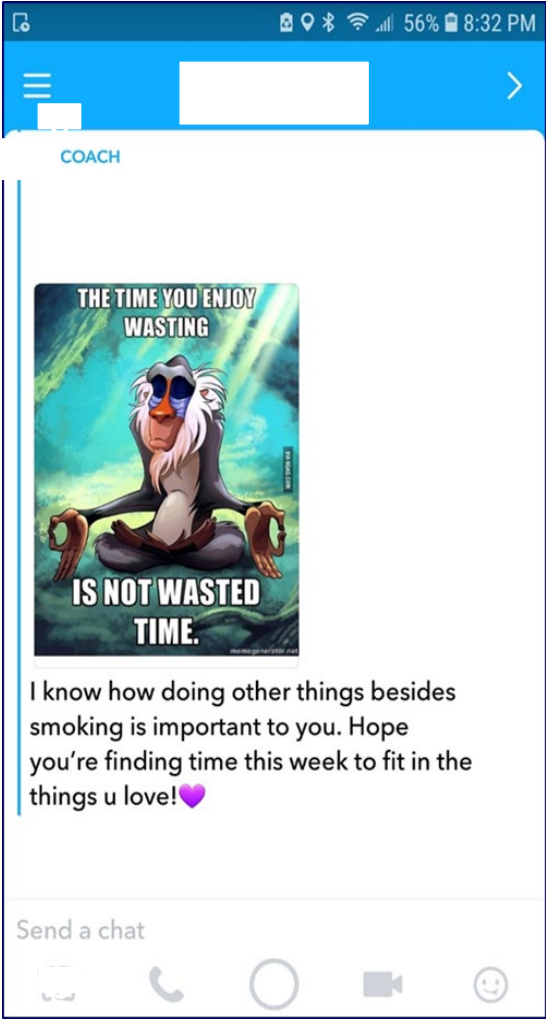
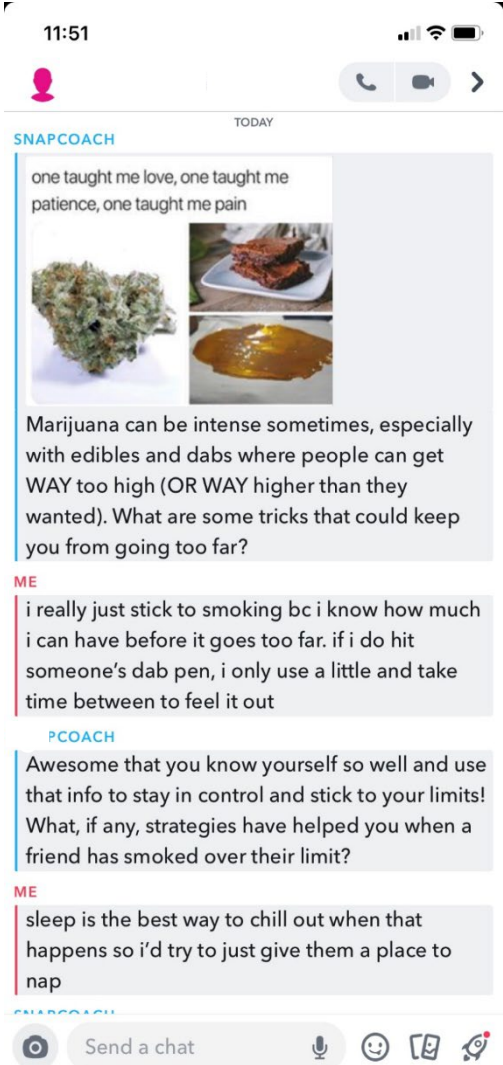
Bonar, E. E., et al. (2014). Computer-enhanced interventions for drug use and HIV risk in the emergency room: preliminary results on psychological precursors of behavior change. *Journal of Substance Abuse Treatment*, 46(1), 5-14.

Waller, R., Bonar, E. E., et al. (2019). Exploring the components of an efficacious computer brief intervention for reducing marijuana use among adults in the emergency department. *Journal of Substance Abuse Treatment*, 99, 67-72.

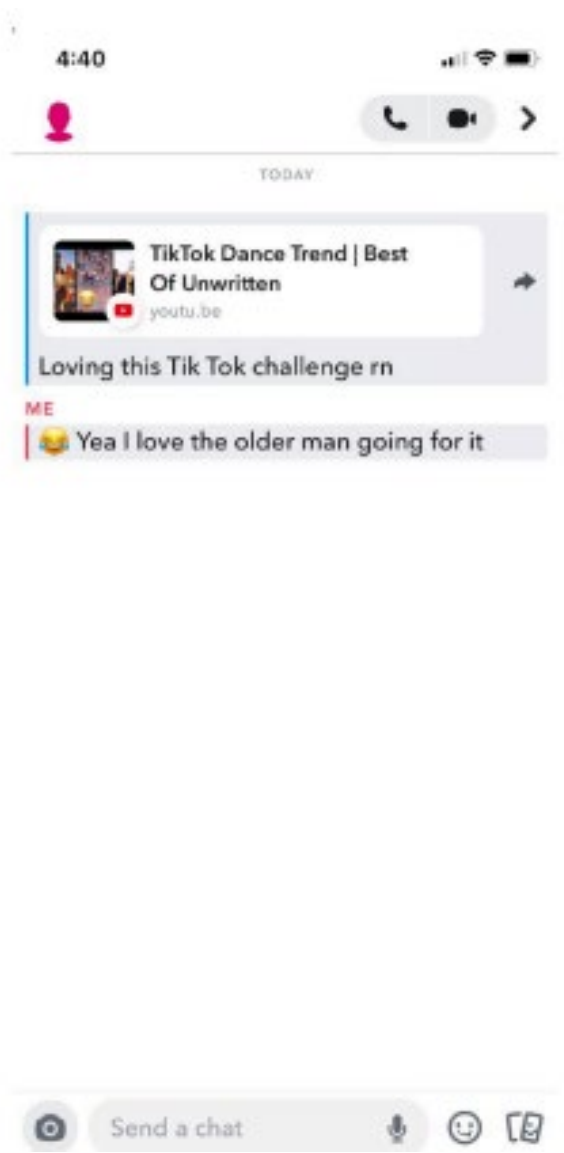
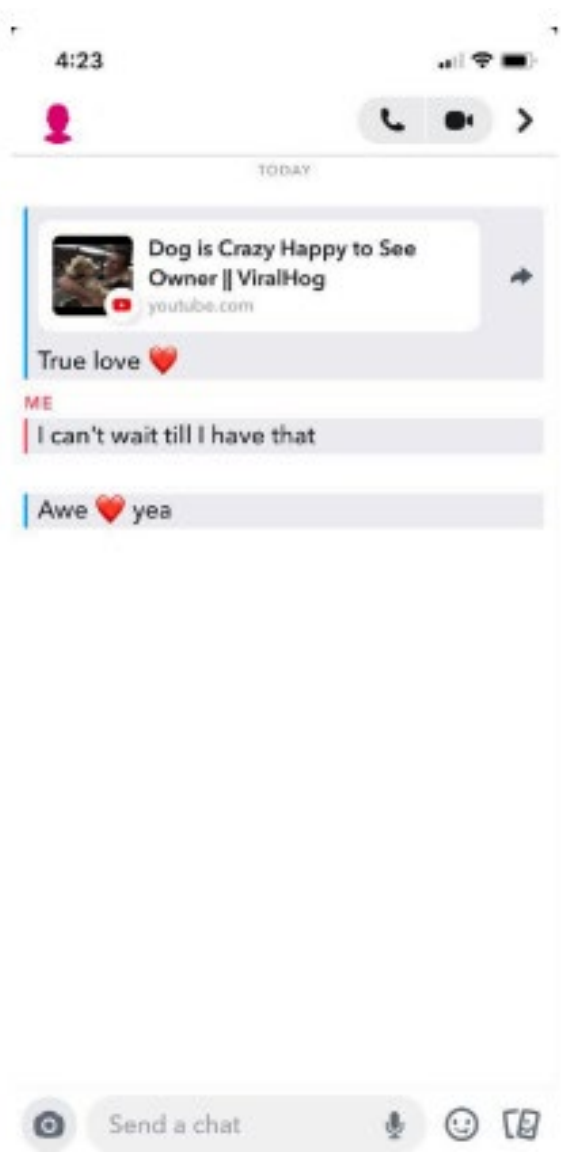
Snapchat Messaging



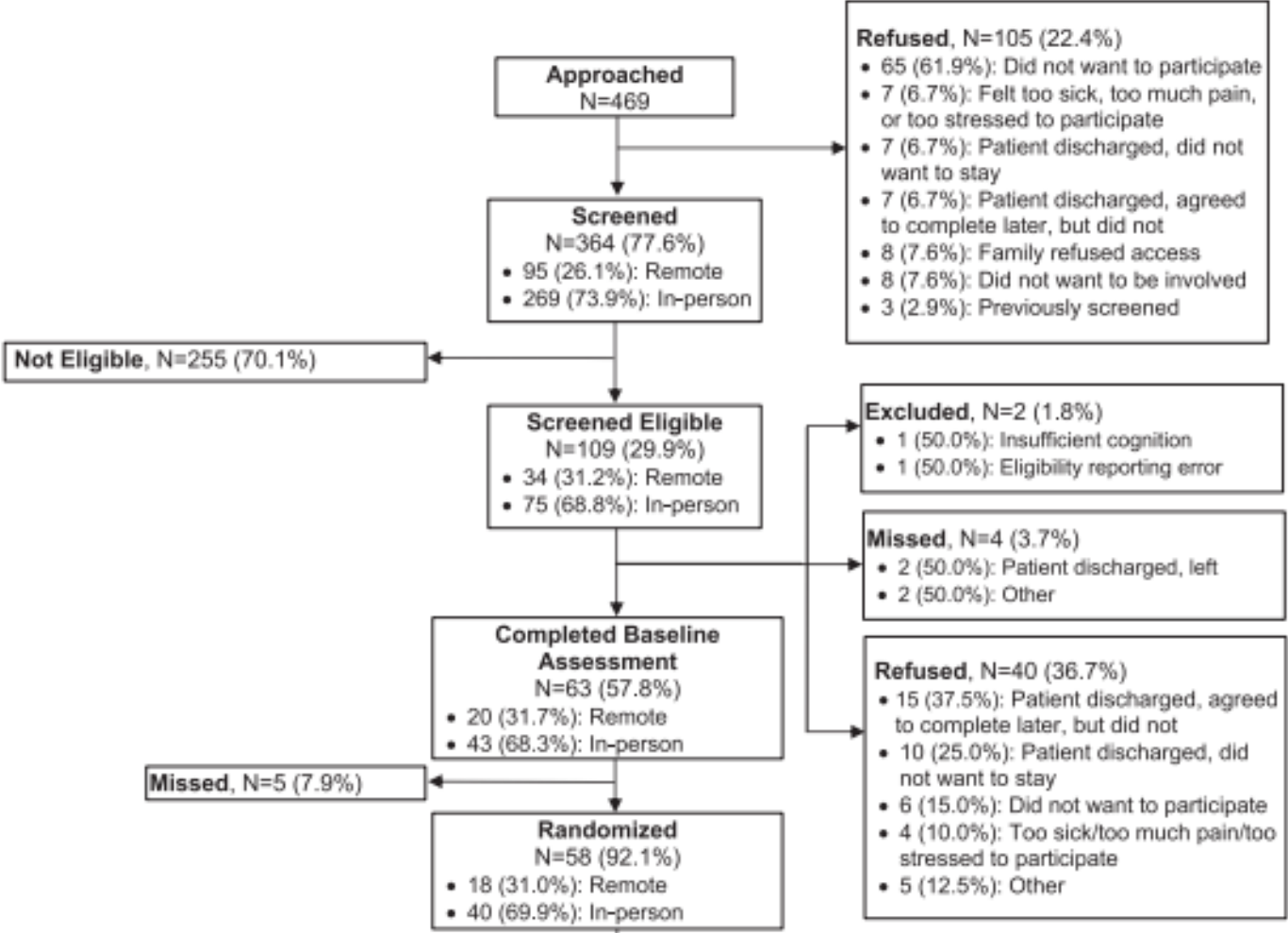
Snapchat Messaging



Control Group Messaging



Study Flow



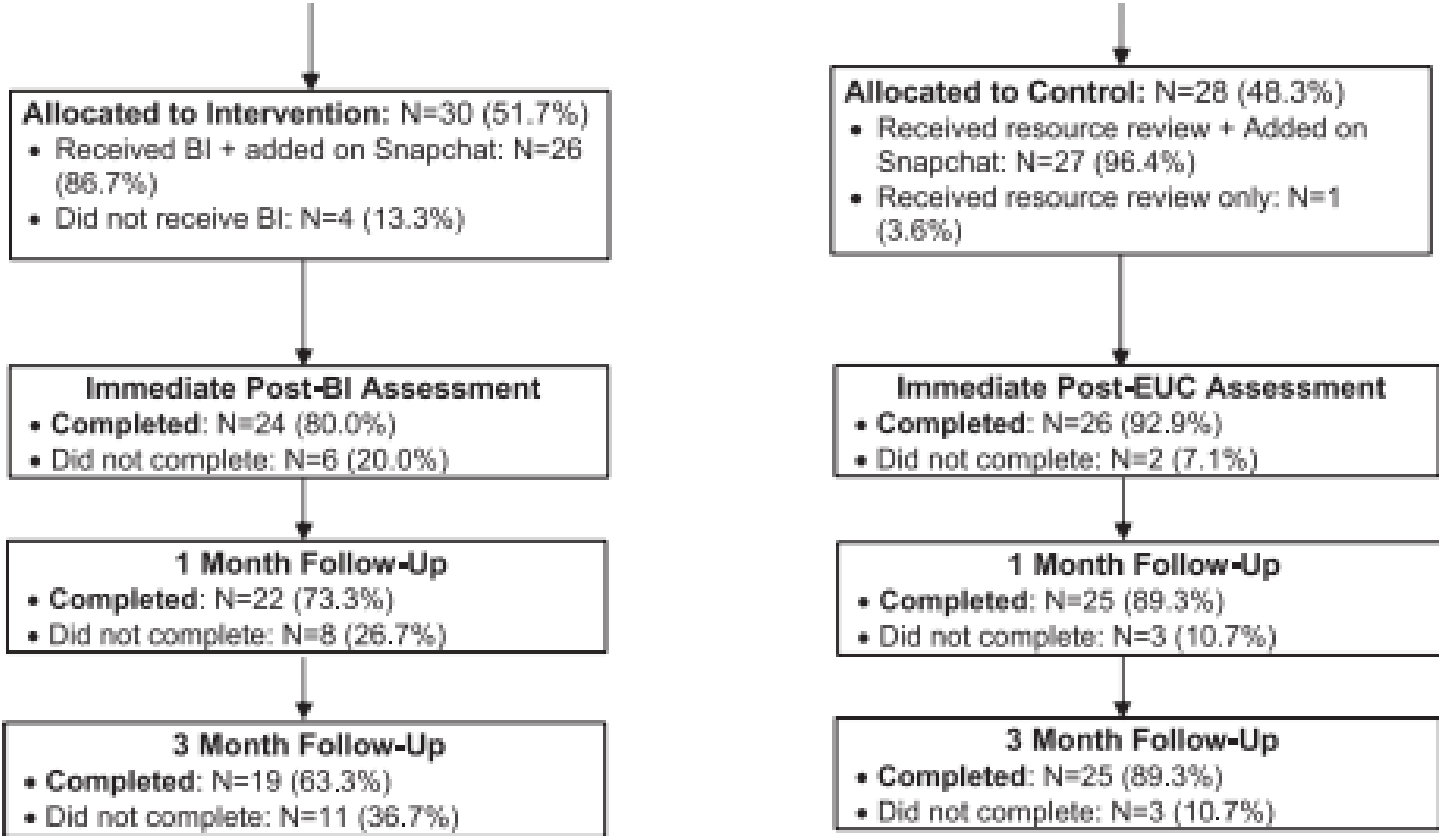


Fig. 3. Study flow diagram (October 19, 2020 – November 19, 2021)

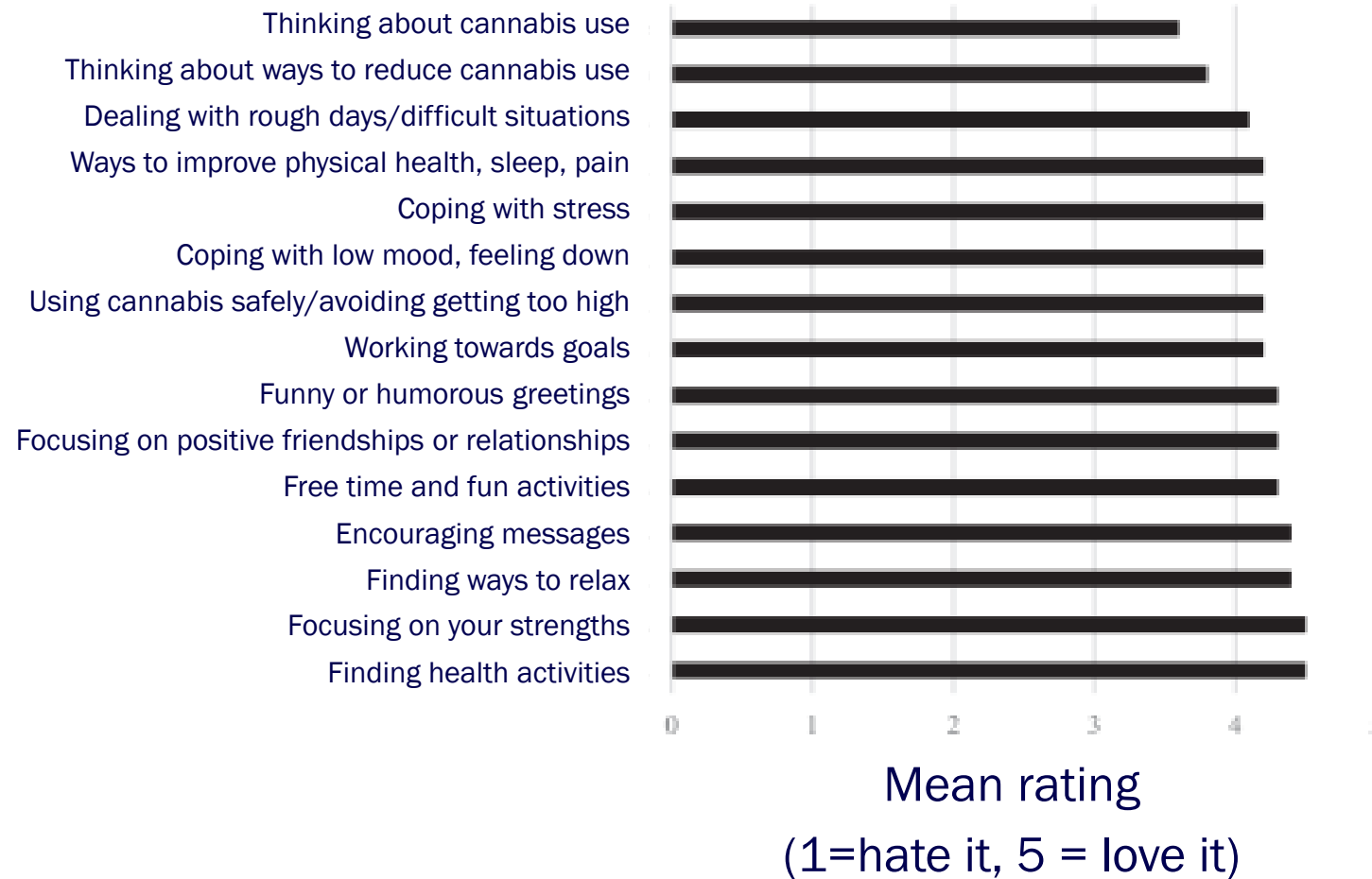
BI Session Acceptability

BI Session Rating (N=24 completed post-test)	% Positive Response
Liked talking with a health coach	96%
Would recommend session to a peer	96%
Helpful to discuss a goal for next few weeks	96%
Helpful to discuss goals/strengths	96%
Helpful to discuss cannabis use	83%
Helpful to think about reasons to cut back on cannabis	88%
Helpful to think through risky scenarios related to cannabis	96%

Snapchat Messaging Acceptability

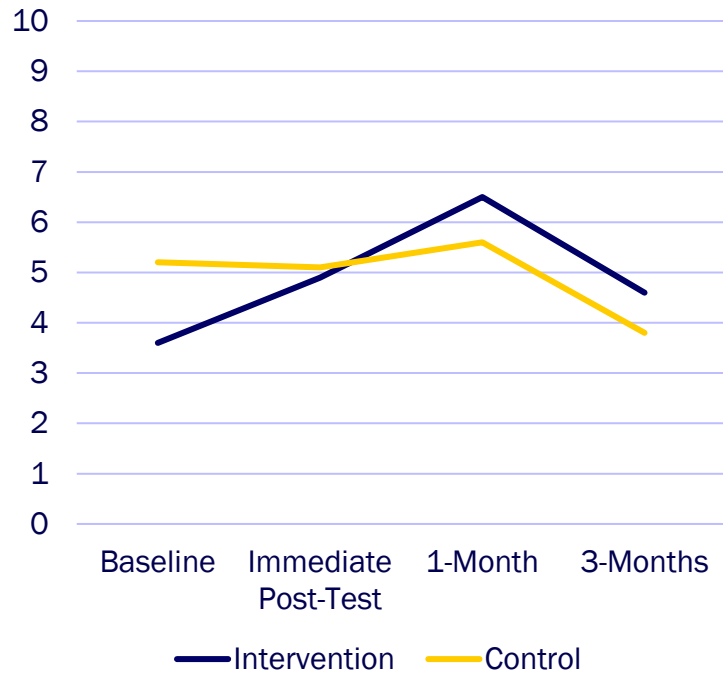
Snapchat Ratings (N=22 completed follow-up survey)	% Positive Response
Liked snapping with coaches	86%
Enjoyed the Snapchat messages	82%
Would recommend Snapchatting with coach	77%
Helpful to interact with coaches on Snapchat	82%
Helpful to snap about cannabis use	57%
Helpful to snap about other topics	67%
Coaches were caring, supportive, warm	91%
Coaches treated participant with respect	96%
Coaches understood me	91%

Types of Snaps & Participant Ratings

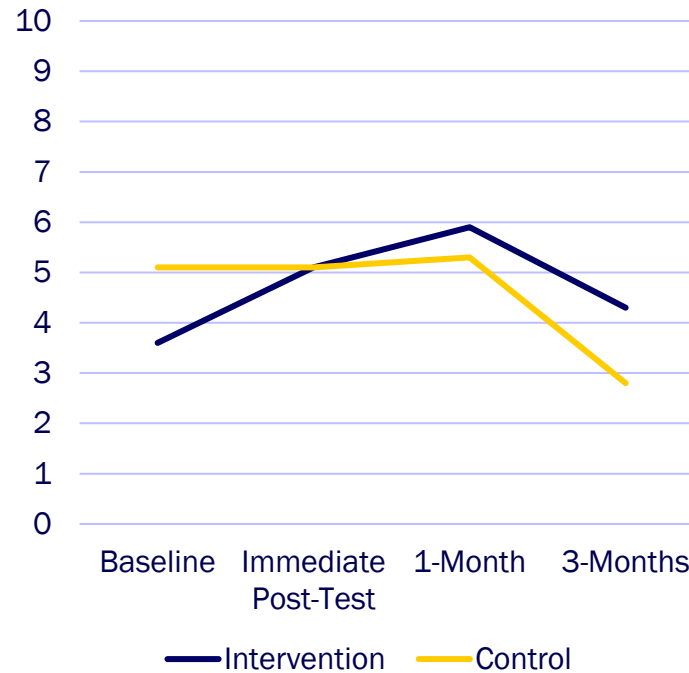


Promising Outcomes: Mechanisms

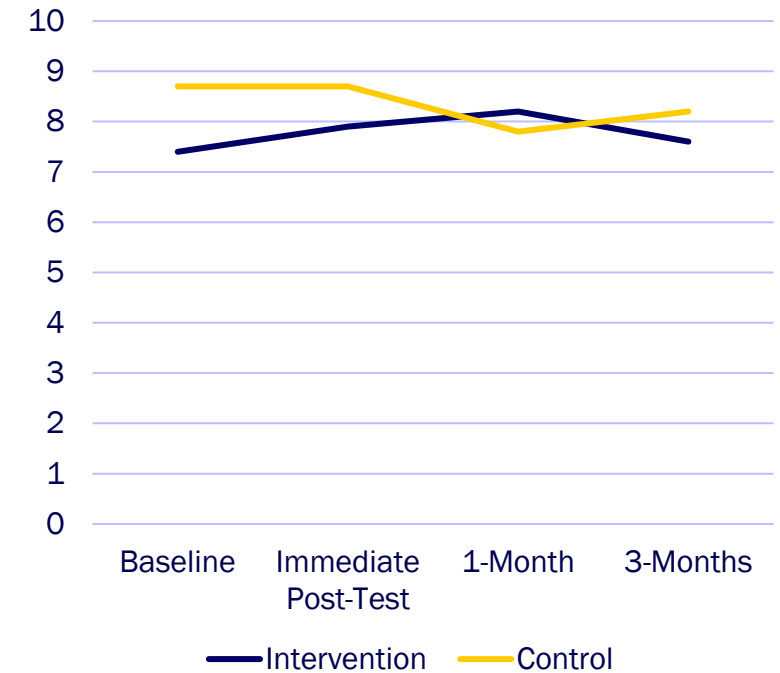
Intentions to Change Cannabis



Importance of Changing Cannabis



Self-Efficacy to Change Cannabis



Study 3: Optimized Interventions to Prevent Opioid Use Disorder Among Adolescents and Young Adults in the Emergency Department

NIDA UG3/UH3(PIs: Walton/Bonar) 050173 & 050173-S1

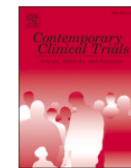
Contemporary Clinical Trials 108 (2021) 106523



Contents lists available at [ScienceDirect](#)

Contemporary Clinical Trials

journal homepage: www.elsevier.com/locate/conclintrial



Optimizing scalable, technology-supported behavioral interventions to prevent opioid misuse among adolescents and young adults in the emergency department: A randomized controlled trial protocol

Erin E. Bonar^{a,b,c,*}, Kelley M. Kidwell^d, Amy S.B. Bohnert^{e,f}, Carrie A. Bourque^{a,b}, Patrick M. Carter^{c,g,h}, Sarah J. Clarkⁱ, Meyer D. Glantz^j, Cheryl A. King^{a,c}, Eve D. Losman^g, Sean Esteban McCabe^k, Meredith L. Philyaw-Kotov^{a,b}, Lisa A. Prosserⁱ, Terri Voepel-Lewis^{f,k}, Kai Zheng^{a,l,m}, Maureen A. Walton^{a,b,c}

Key Risk Factors for Opioid Misuse/OD

- Binge drinking
- Other drug use (e.g., cannabis)
- Depression
- Suicidality

Preventive Medicine 132 (2020) 105972



Contents lists available at ScienceDirect

Preventive Medicine

journal homepage: www.elsevier.com/locate/ypmed



Review Article

Prescription opioid misuse among adolescents and emerging adults in the United States: A scoping review



Erin E. Bonar^{a,b,*}, Lara Coughlin^a, Jessica S. Roche^{b,c}, Meredith L. Philyaw-Kotov^a,
Emily A. Bixler^d, Sergey Sinelnikov^d, Alaina Kolosh^d, Morgan J. Cihak^d,
Rebecca M. Cunningham^{b,c,e}, Maureen A. Walton^{a,b}

^a University of Michigan Addiction Center and Department of Psychiatry, University of Michigan School of Medicine, 4250 Plymouth Road, Ann Arbor, MI 48109, United States of America

^b University of Michigan Injury Prevention Center, University of Michigan School of Medicine, 2800 Plymouth Road, NCRC10-G080, Ann Arbor, MI 48109, United States of America

^c University of Michigan Department of Emergency Medicine, University of Michigan School of Medicine, 2800 Plymouth Road, NCRC10-G080, Ann Arbor, MI 48109, United States of America

^d National Safety Council, 1121 Spring Lake Drive, Itasca, IL 60143, United States of America

^e University of Michigan School of Public Health, Department of Health Behavior & Health Education, 1415 Washington Heights, 3790A SPH I, Ann Arbor, MI 48109, United States of America

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0022-006X/15/\$12.00 http://dx.doi.org/10.1037/a0038805

BRIEF REPORT

Online Suicide Risk Screening and Intervention With College Students: A Pilot Randomized Controlled Trial

Cheryl A. King, Daniel Eisenberg, Kai Zheng, Ewa Czyz, Anne Kramer, Adam Horwitz,
and Stephen Chermack
University of Michigan



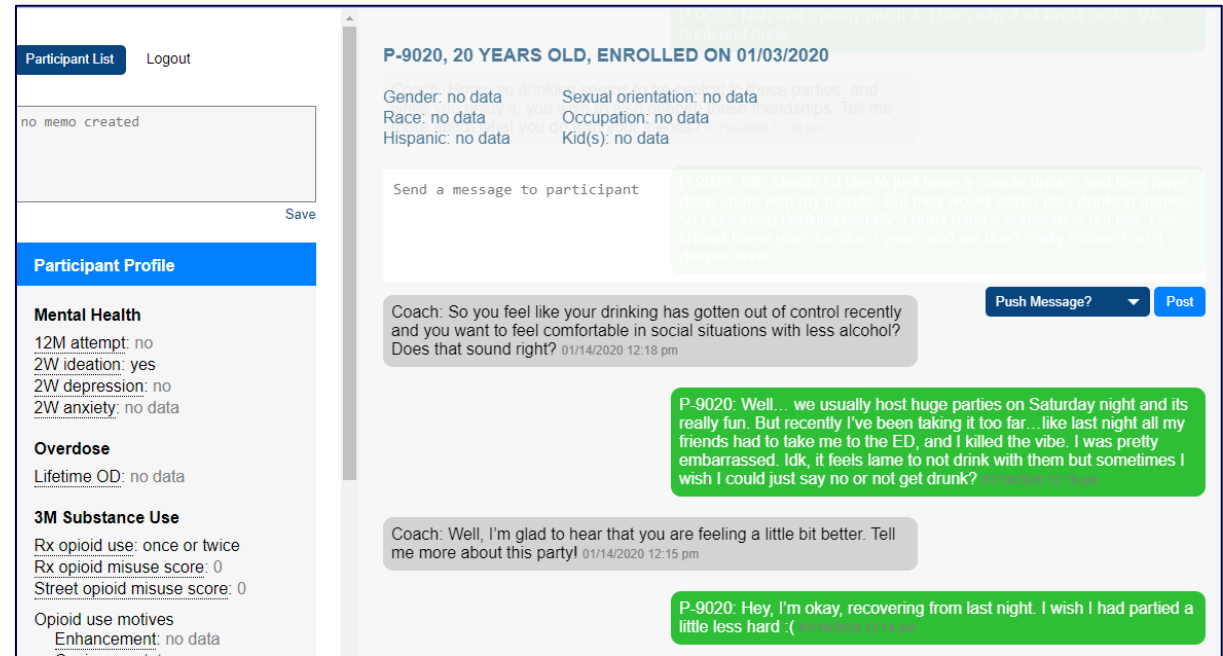
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Journal of Consulting and Clinical Psychology

2022, Vol. 90, No. 2, 172–183
https://doi.org/10.1037/ccp0000709

Electronic Bridge to Mental Health for College Students: A Randomized Controlled Intervention Trial

Cheryl A. King^{1, 2, 3}, Daniel Eisenberg⁴, Jacqueline Pistorello⁵, William Coryell⁶,
Ronald C. Albucher⁷, Todd Favorite¹, Adam Horwitz^{1, 2}, Erin E. Bonar^{1, 3, 8},
Daniel Epstein¹, and Kai Zheng⁹



The screenshot displays a web portal interface for a participant named P-9020. On the left, there is a 'Participant List' tab and a 'Logout' link. Below this is a text area for creating a memo, currently empty, with a 'Save' button. The main section is titled 'Participant Profile' and contains several data fields:

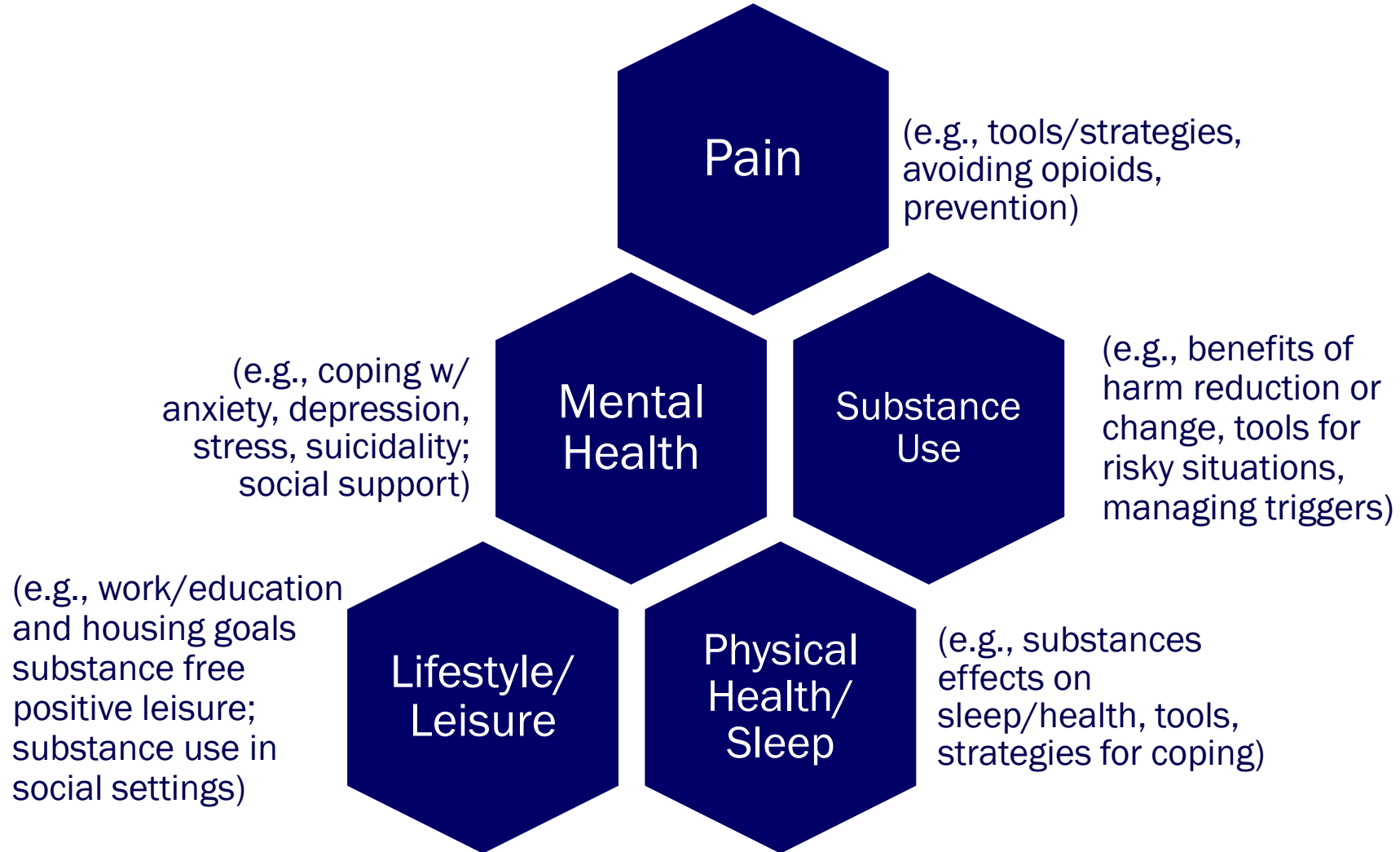
- Mental Health:** 12M attempt: no, 2W ideation: yes, 2W depression: no, 2W anxiety: no data.
- Overdose:** Lifetime OD: no data.
- 3M Substance Use:** Rx opioid use: once or twice, Rx opioid misuse score: 0, Street opioid misuse score: 0.
- Opioid use motives:** Enhancement: no data.

On the right, a messaging interface is shown. At the top, it says 'P-9020, 20 YEARS OLD, ENROLLED ON 01/03/2020'. Below this are demographic details: Gender: no data, Race: no data, Hispanic: no data, Sexual orientation: no data, Occupation: no data, Kid(s): no data. A 'Send a message to participant' input field is present. The message history includes:

- Coach:** So you feel like your drinking has gotten out of control recently and you want to feel comfortable in social situations with less alcohol? Does that sound right? (01/14/2020 12:18 pm)
- P-9020:** Well... we usually host huge parties on Saturday night and its really fun. But recently I've been taking it too far...like last night all my friends had to take me to the ED, and I killed the vibe. I was pretty embarrassed. Idk, it feels lame to not drink with them but sometimes I wish I could just say no or not get drunk? (01/14/2020 12:16 pm)
- Coach:** Well, I'm glad to hear that you are feeling a little bit better. Tell me more about this party! (01/14/2020 12:15 pm)
- P-9020:** Hey, I'm okay, recovering from last night. I wish I had partied a little less hard :((01/14/2020 12:14 pm)

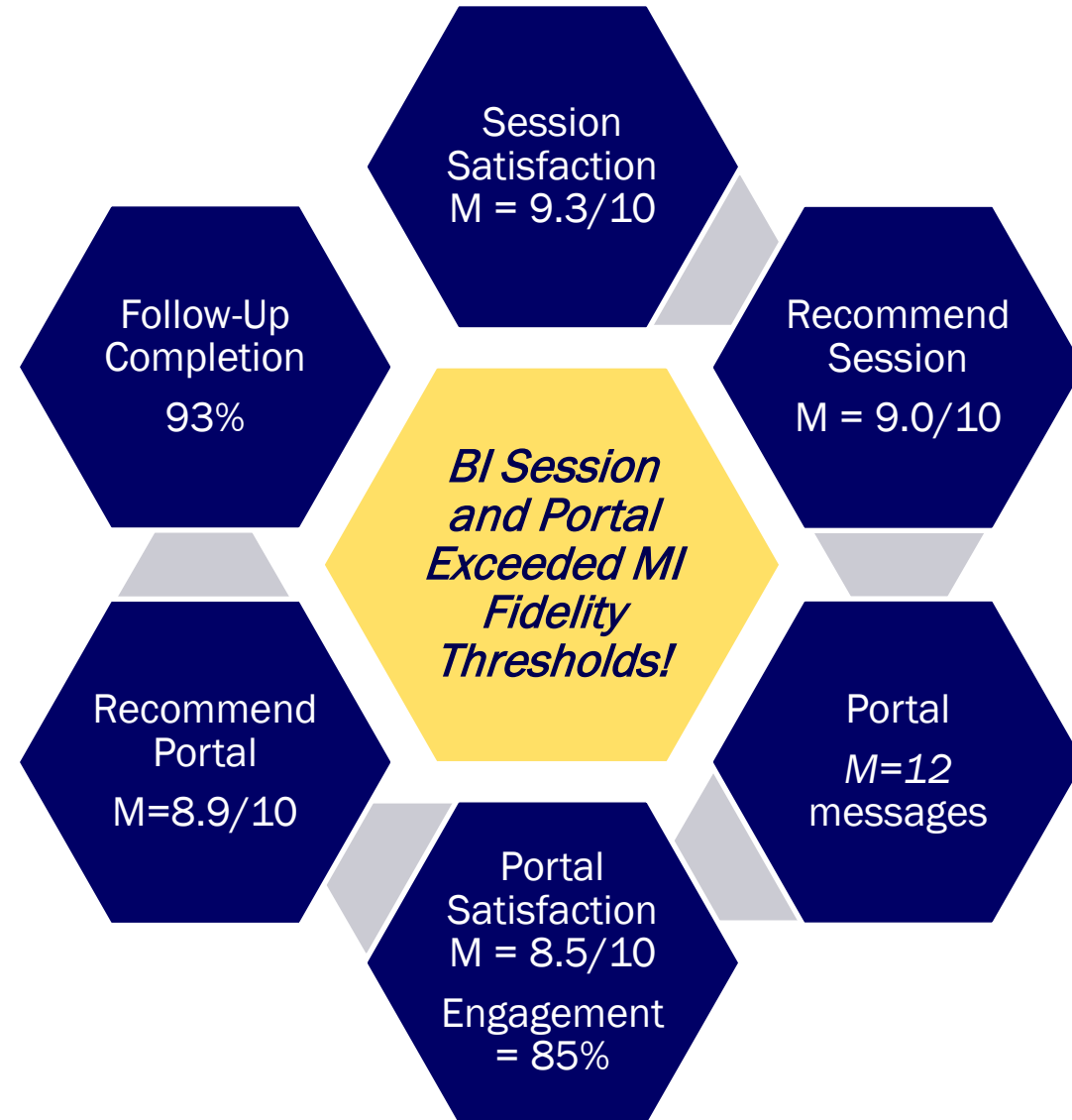
Buttons for 'Push Message?' and 'Post' are visible at the bottom right of the messaging area.

Portal Messaging Topics



2020 Pilot Work

- Enrolled N = 40 in Feb-June 2020; refined interventions after N = 10
- Fully remote recruitment and interventions during COVID-19 for 75% of sample
- Required to meet milestones to obtain UH3 funding for full trial and implementation activities



Pilot Participant BI Session Feedback

I enjoyed the helpful links given to me and the suggestions on how to find another job or relaxing. It was very helpful to feel like someone was listening.

Video chat was amazing to start with then to get to build on that.

It was nice to feel connected to someone caring about your everyday health and well being outside of just needing to go to the doctor

It was really nice having someone to talk to that wasn't biased or trying to tell me what I'm doing wrong. They provided suggestions and were very understanding

I liked talking about my goals and what is important to me. I usually only have those conversations with people I know so getting an outsider's perspective was appreciated.

The sincerity and respect that was displayed by the coaches was easily the best part.

Pilot Participant Preferred Topics

Cannabis use, my feelings, and all of the advice and feedback I received about things I talked about.

How to cope with my anxiety, how to avoid going overboard with drugs, how to be careful taking my medicine.

Anything involving meditation, grounding, learning and discussing coping techniques.

Talking about mental health, sharing therapy experiences and experiences with ...symptoms.

Mental health regarding everything [I've] gone through and coping methods. Topics related to pain, drugs, and overdose.

Medical, family issues, depression and anxiety.

Sneak Peek: Preliminary cannabis outcomes

- 68% of 1155 participants enrolled reported cannabis use at baseline
- Comparison of 3-month outcomes to baseline:

Cannabis frequency

BI+Portal = -19.2%

Control = -9.4%

Cannabis consequences

BI+Portal = -32.2%

Control = -11.6%

The way forward...

- Cannabis interventions for YAs needed
- ED is a venue to initiate acceptable & feasible interventions
- Extending interventions via engaging means (e.g., social media, portal) may boost impact





Questions: erinbona@med.umich.edu