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Digital
Health

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ONLINE RECRUITMENT IN THE ERA OF COVID-19: PITFALLS AND PROGRESS

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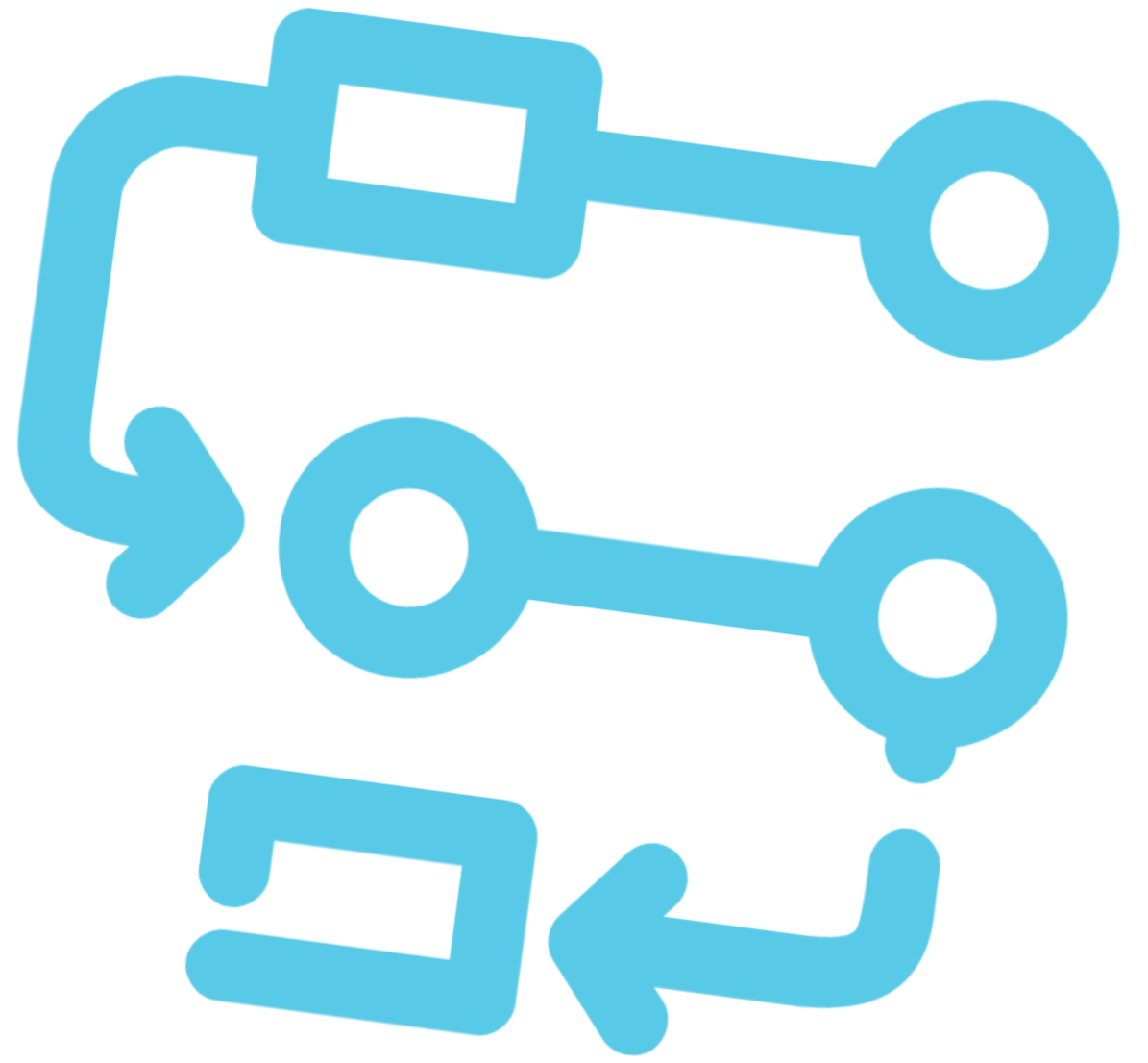
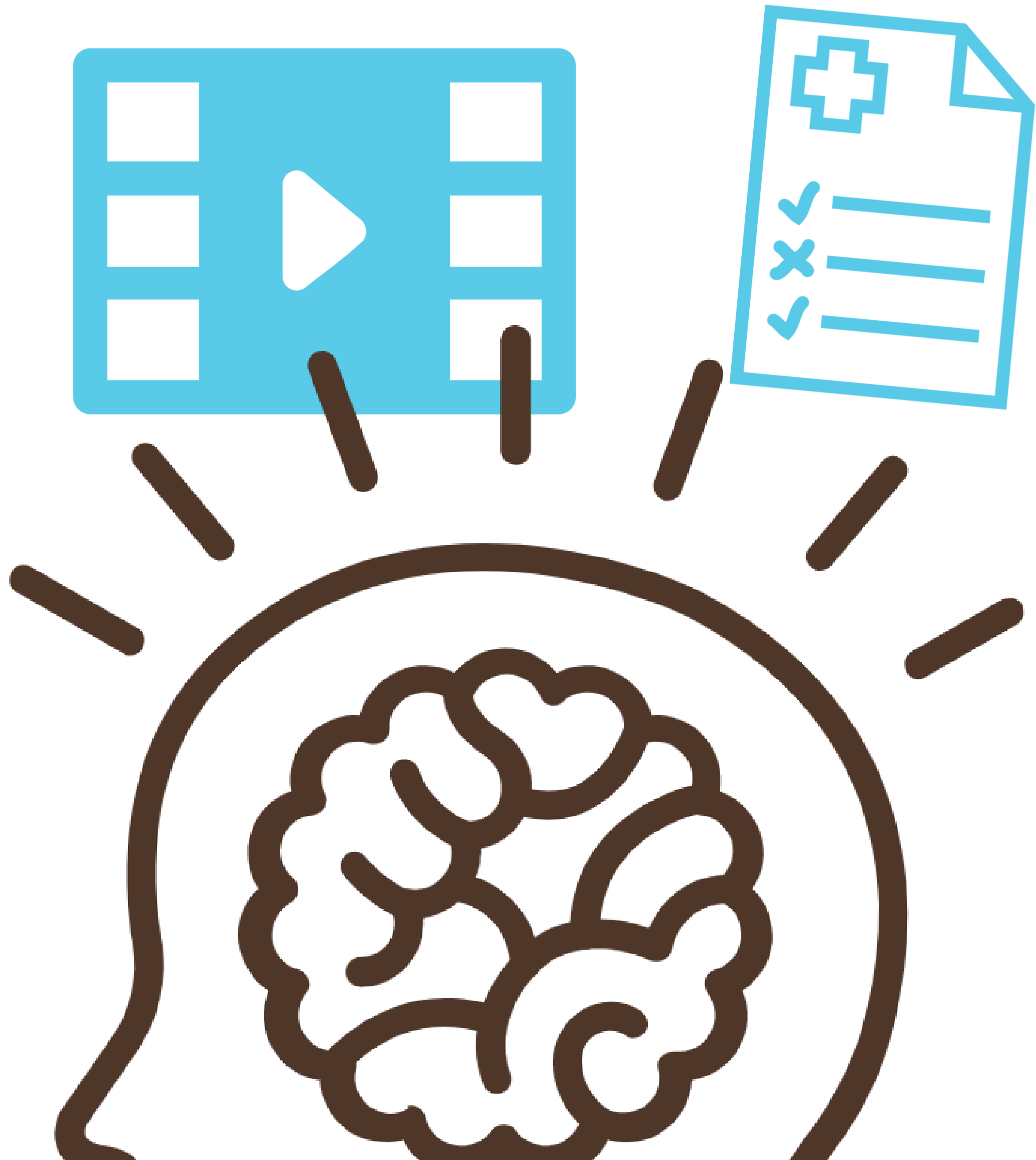
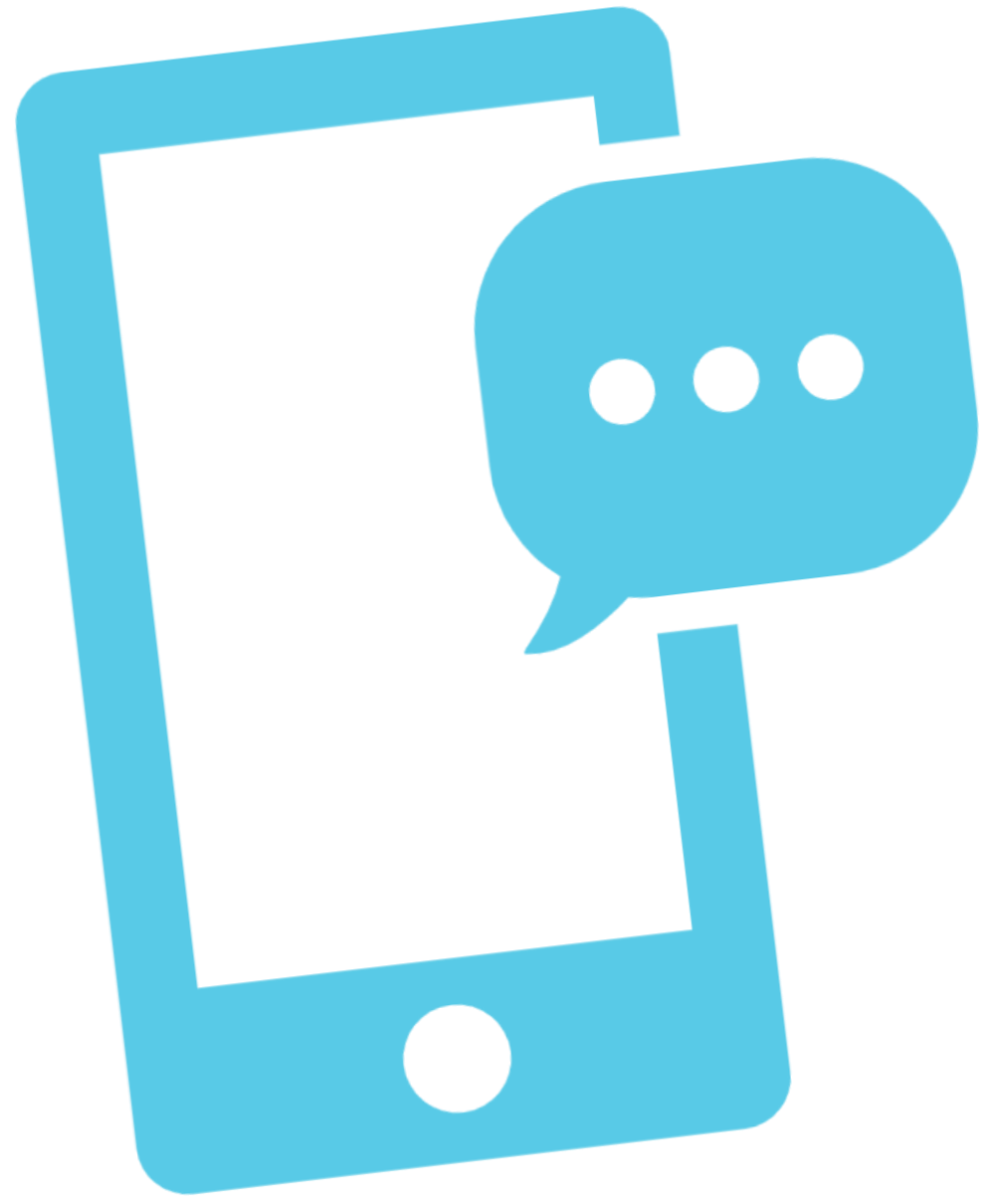
DISCLOSURES

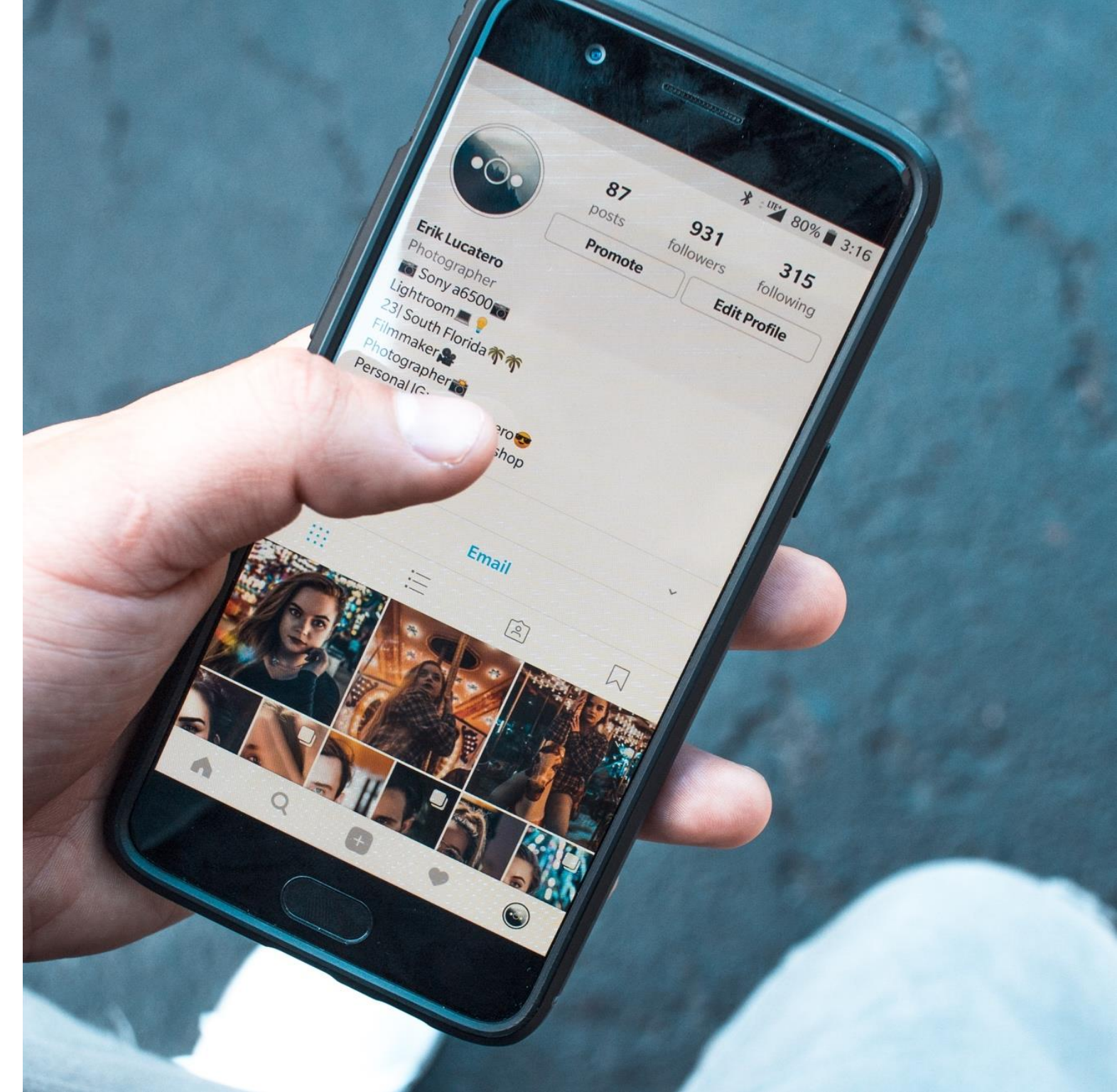
- Funded by NIH, CDC, foundation grants
- President of Board (volunteer) of GetUsPPE
- Chief Research Officer (volunteer) of AFFIRM Research
- Unrelated talks for Medscape





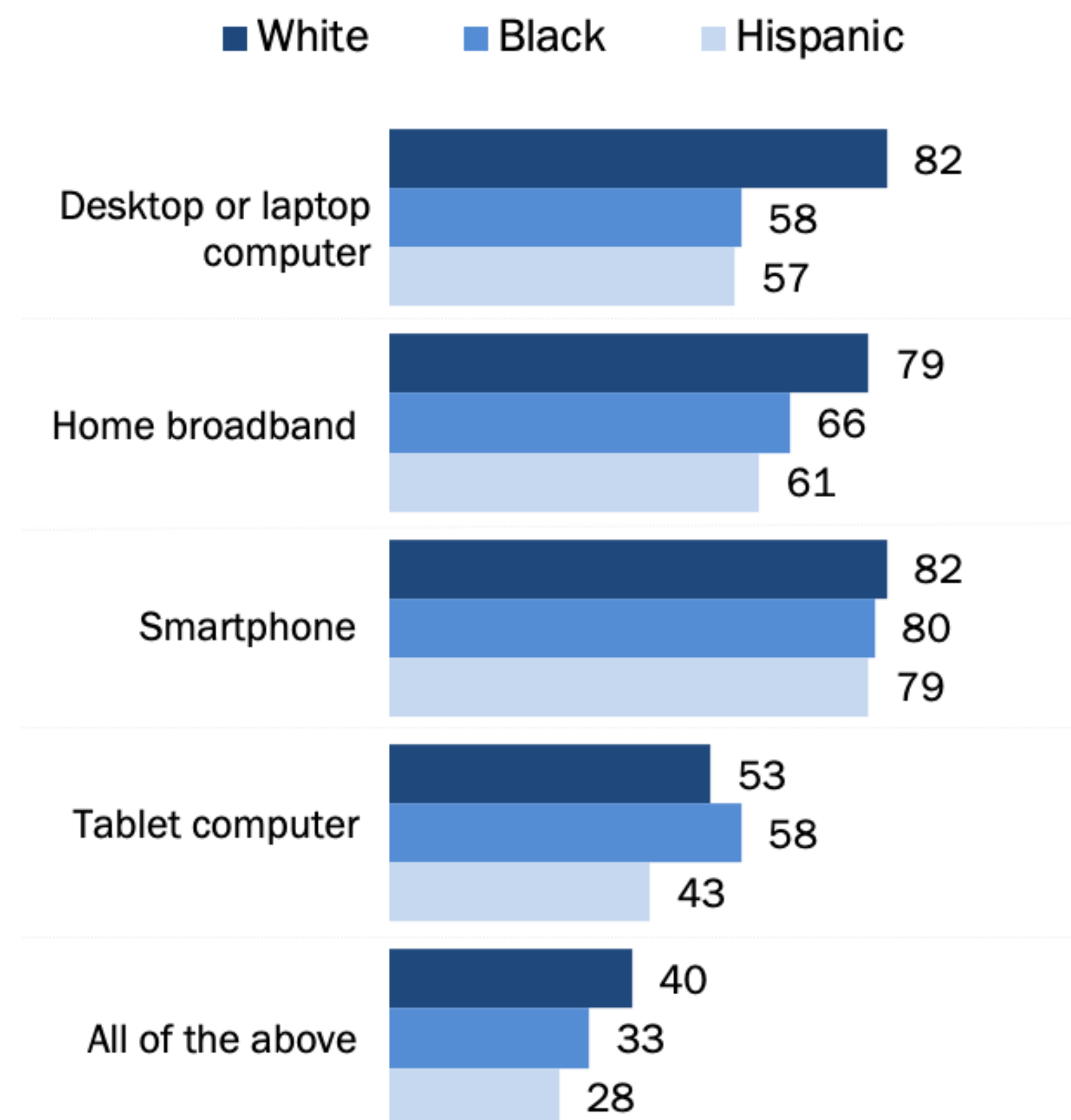






Despite some lower adoption, blacks and Hispanics own smartphones at similar shares to whites

% of U.S. adults in each group who say they have the following



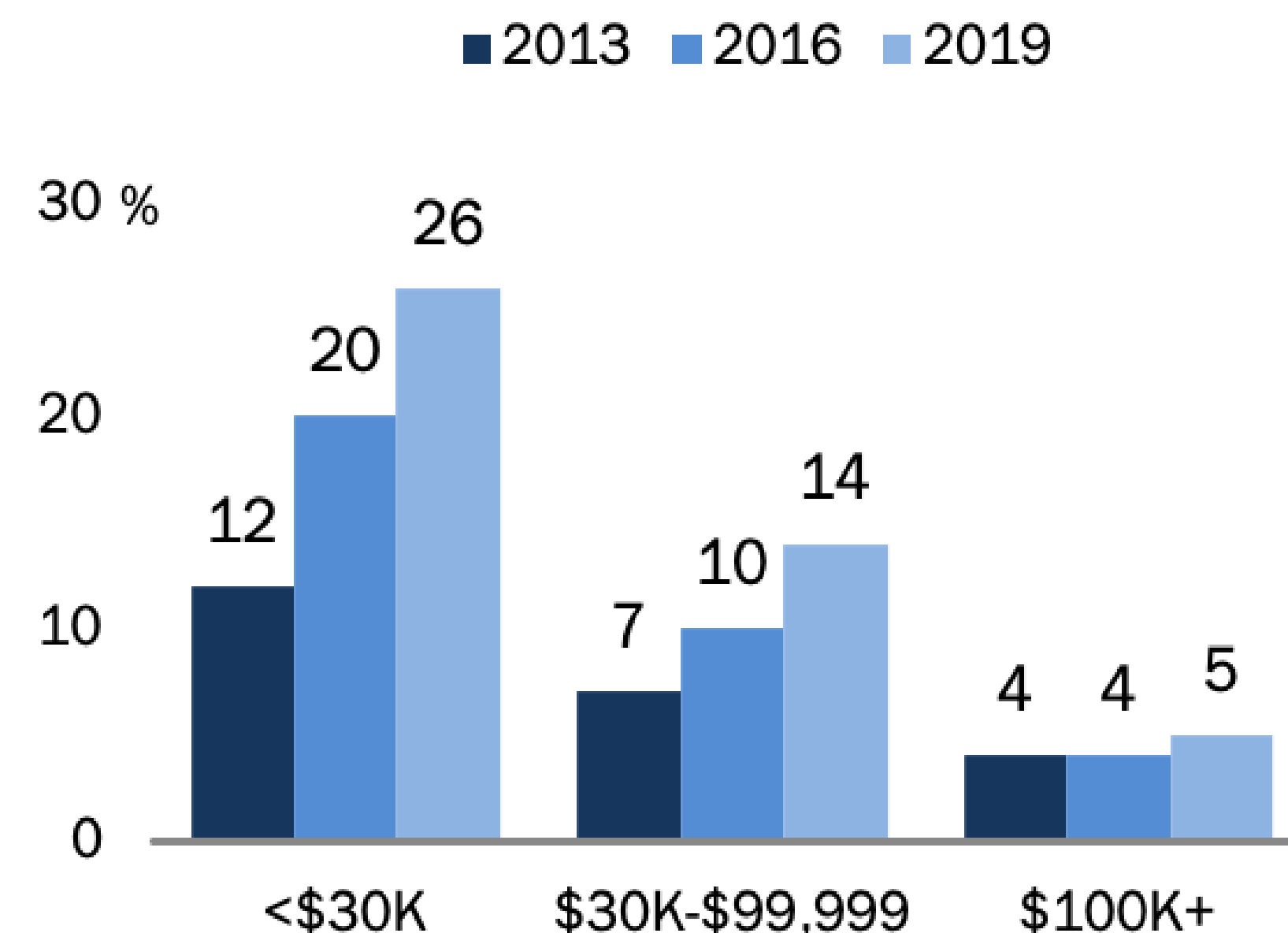
Note: Those who did not answer are not shown. Whites and blacks include only non-Hispanics. Hispanics are of any race.

Source: Survey conducted Jan. 8-Feb. 7, 2019.

PEW RESEARCH CENTER

The share of lower-income Americans who rely on their smartphone for going online has roughly doubled since 2013

% of U.S. adults who say they have smartphone, but no broadband at home, by annual household income



Note: Respondents who did not give an answer are not shown. Source: Survey conducted Jan. 8-Feb. 7, 2019. Trend data from previous Pew Research Center surveys.

PEW RESEARCH CENTER



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PRACTICAL RESEARCH
CDH is committed to methodological excellence, innovative thought, and practical clinical application of research in digital health science.

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CDH creates experiential educational programs for students, researchers and medical professionals, to accelerate and enrich digital health innovation.

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CDH works with commercial partners and entrepreneurs to disseminate and implement digital health innovations that improve health outcomes today.

COLLABORATE TO INNOVATE
CDH is a space where patients, communities, researchers, and clinicians work together. We know that the best solutions come from intentional inclusion of diverse perspectives and experiences.

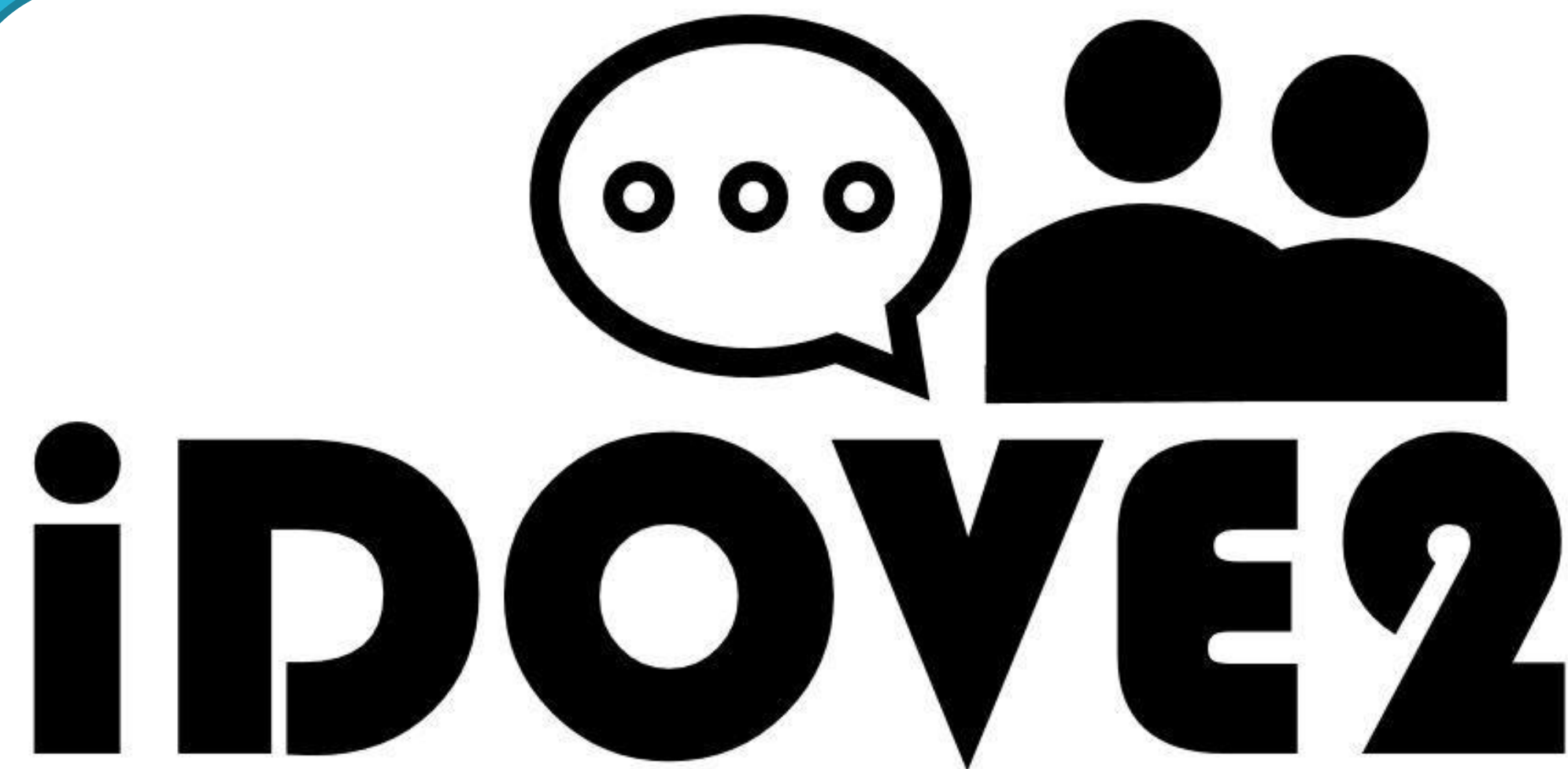
PROGRAM MANAGEMENT + COMMUNICATIONS

FINANCIAL ADMINISTRATION + FUNDRAISING

PARTNERSHIPS + COLLABORATIONS

Strategic Priorities

Operations

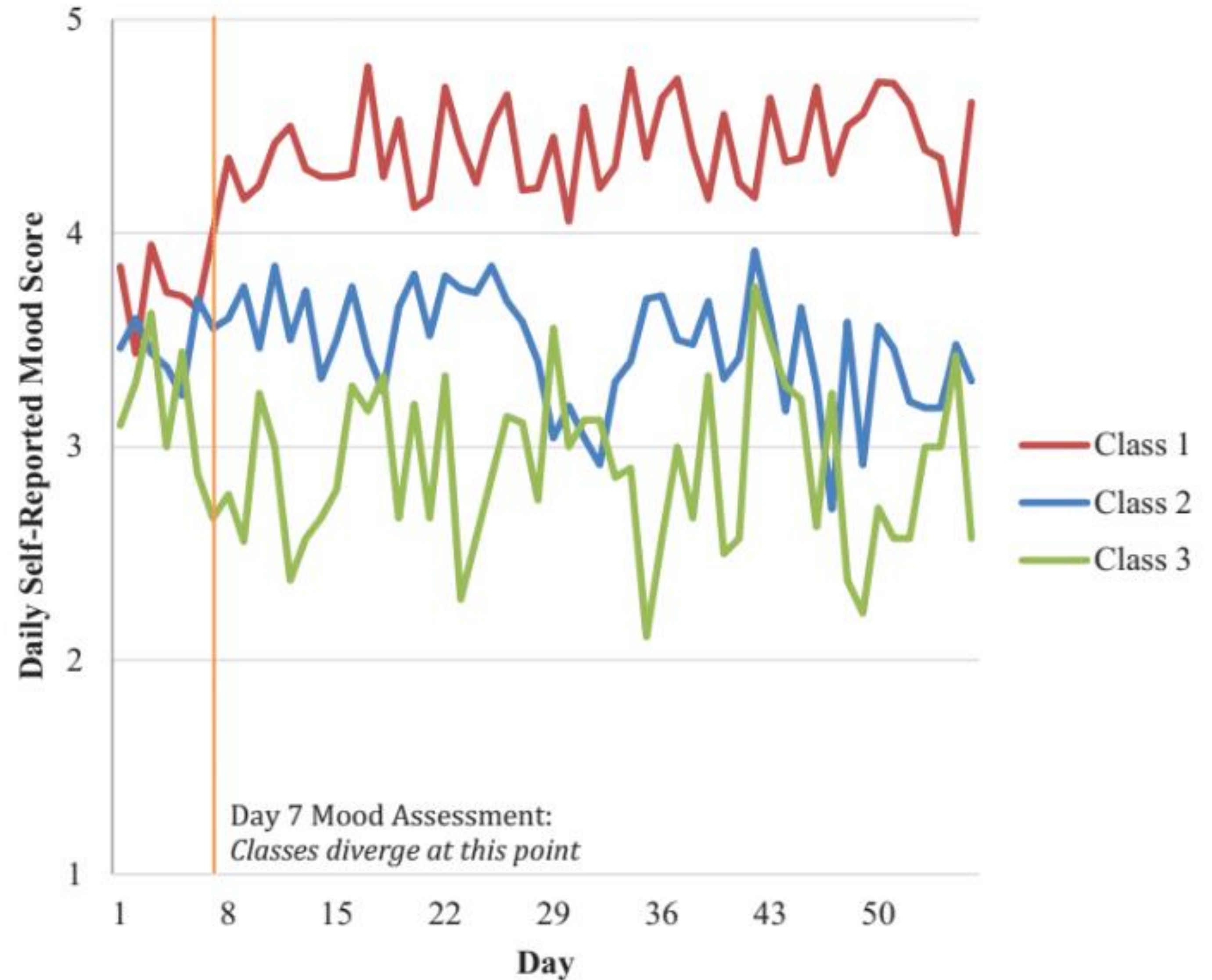


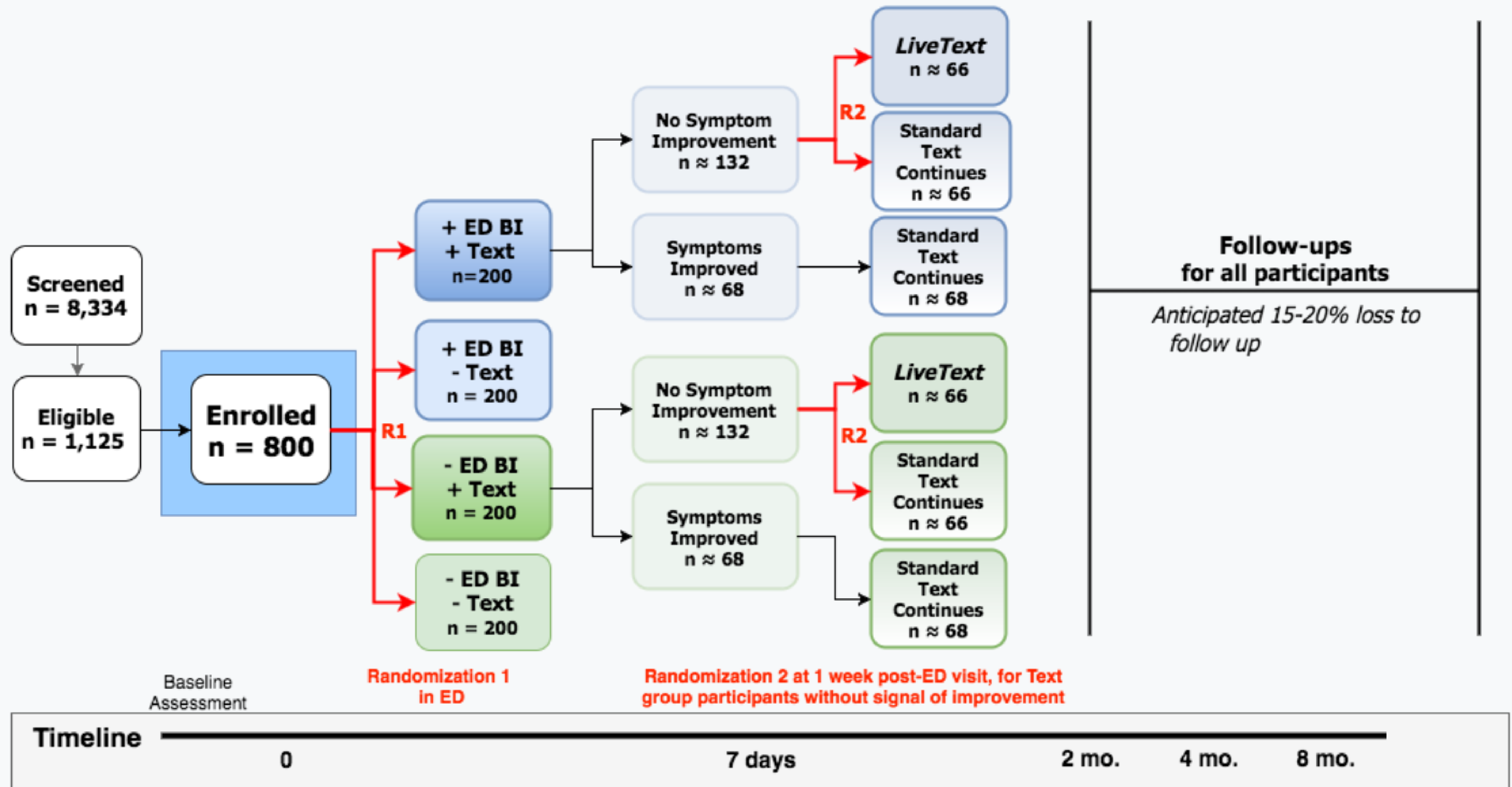
A Technology-Augmented
Intervention to Prevent Peer
Violence & Depressive Symptoms
Among At-Risk Emergency
Department Adolescents

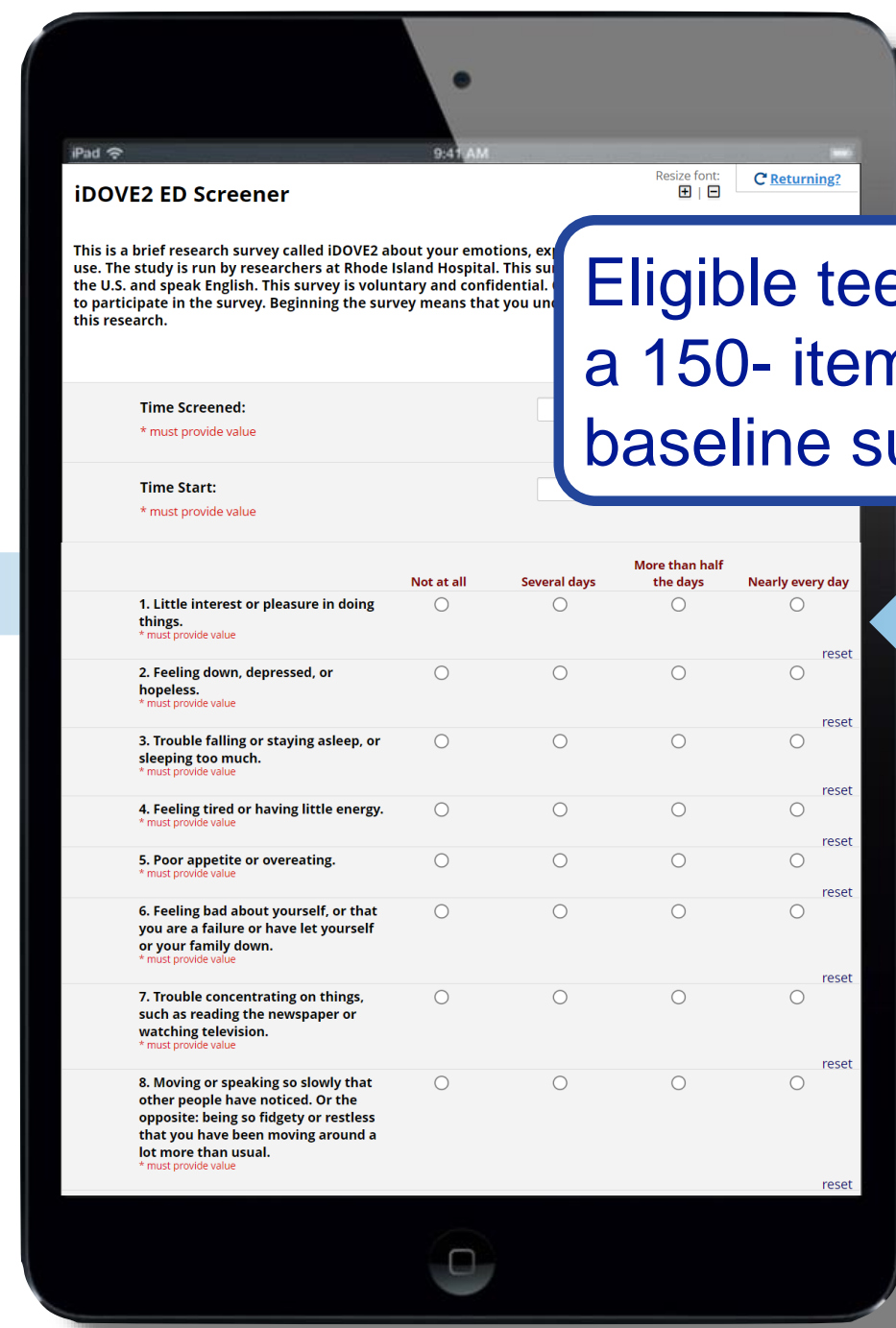


iDOVE1 OUTCOMES

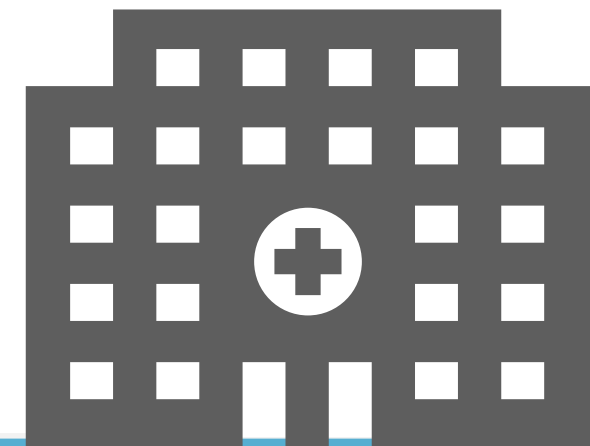
- Improved depressive symptoms ($p=0.07$) among the more symptomatic adolescents
- Improved physical peer violence ($p=0.01$) among the more symptomatic youth





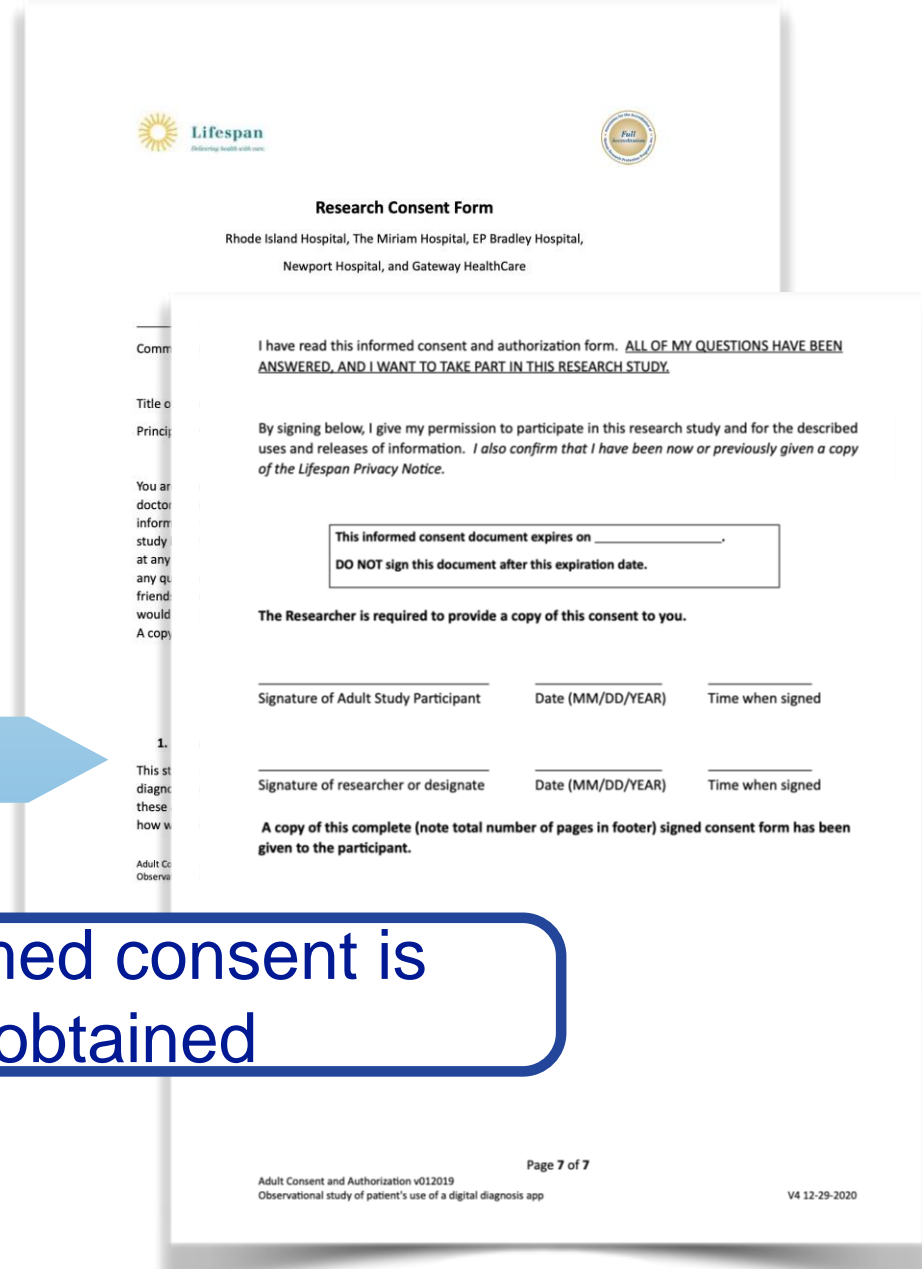


Eligible teens are given a 150- item screener/ baseline survey

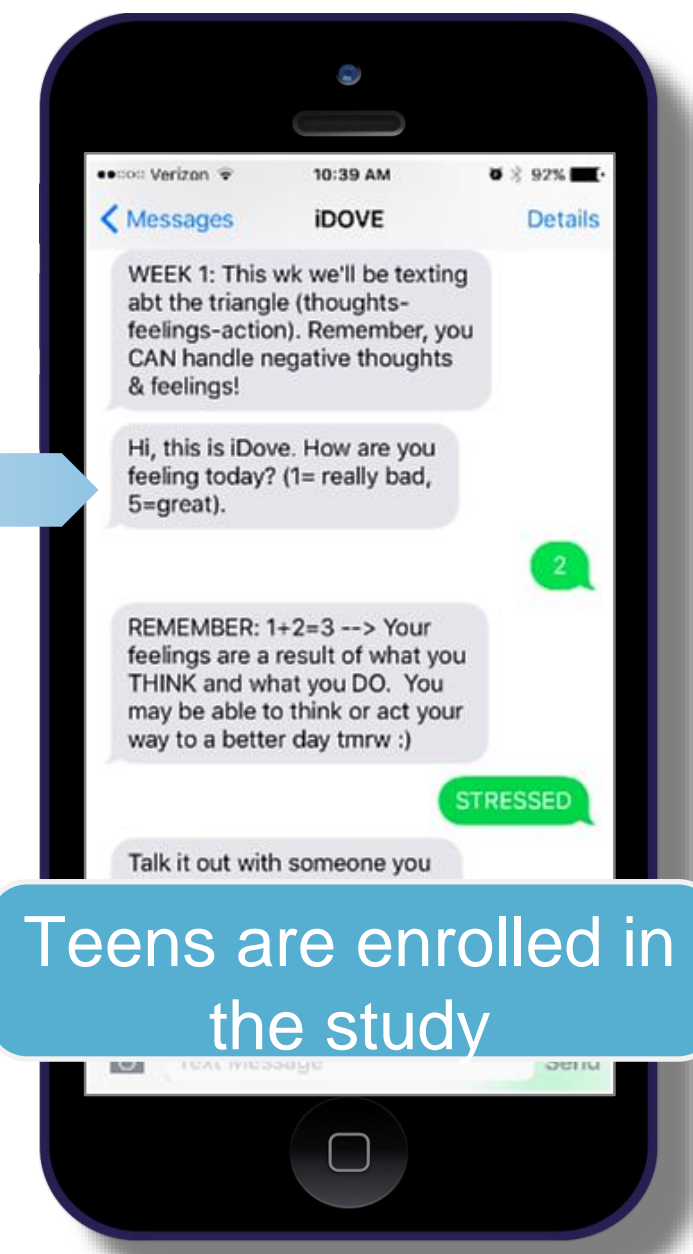


Teens who arrive in the RIH ED are prescreened

Teens who meet inclusion criteria on the screener are invited to participate in the study



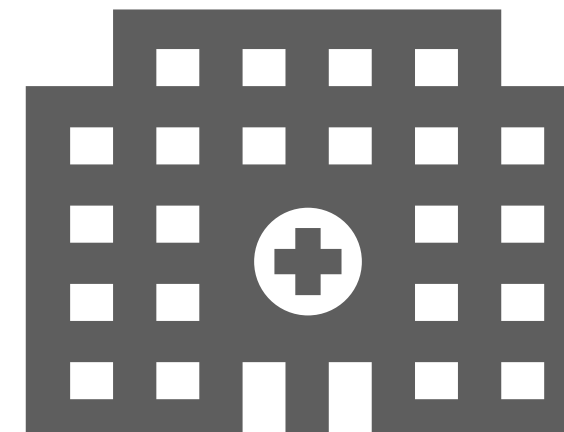
Informed consent is obtained



Teens are enrolled in the study



Eligible teens are given a 150- item screener/ baseline survey



Teens who arrive in the RIH ED are prescreened

Eligible teens are given a 48 - item screener to complete in the ED or have the option of completing it at home

Teens who meet inclusion criteria on the screener are invited to participate in the study

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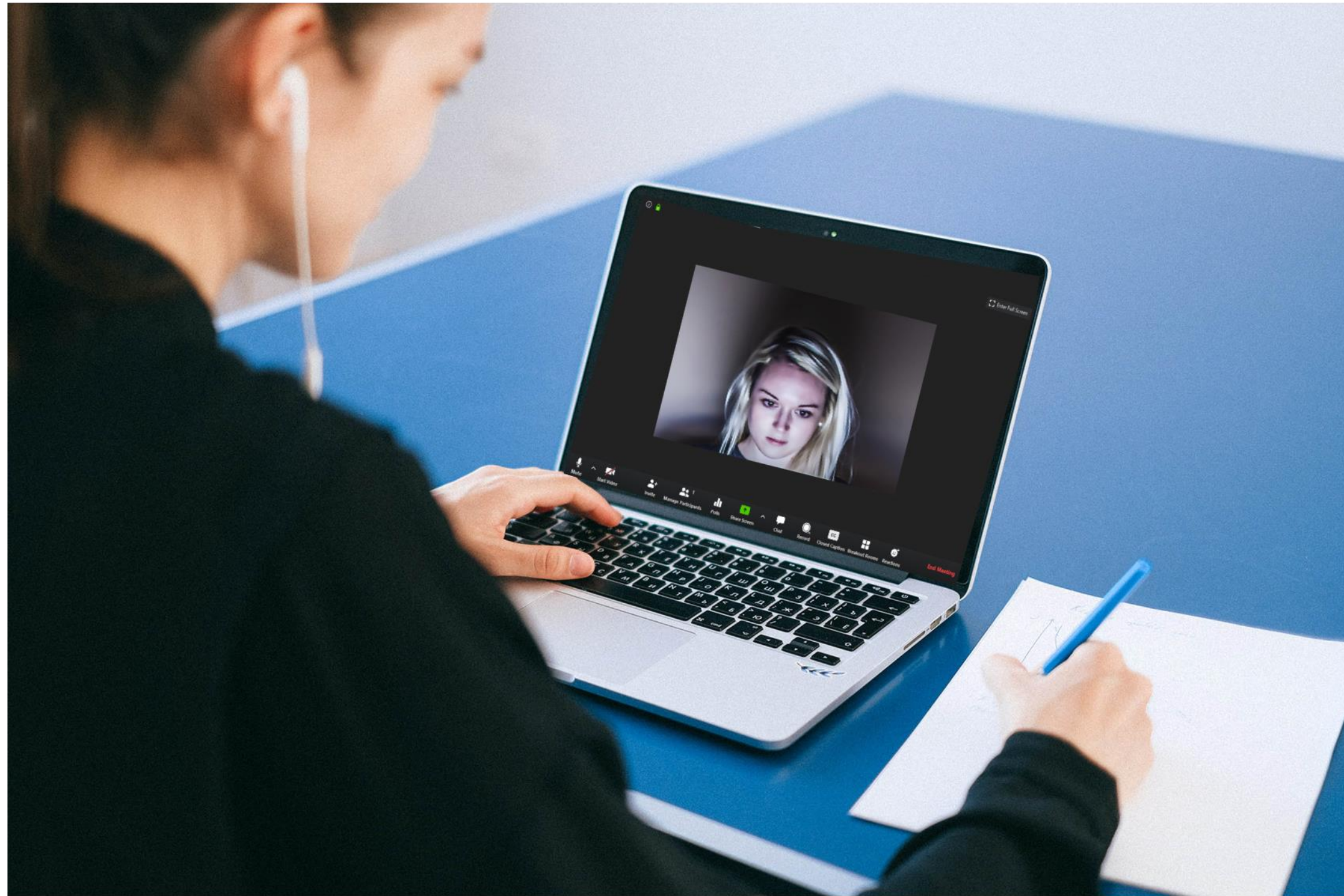
Informed consent is obtained

Teens are enrolled in the study

A 102-item baseline survey is completed remotely

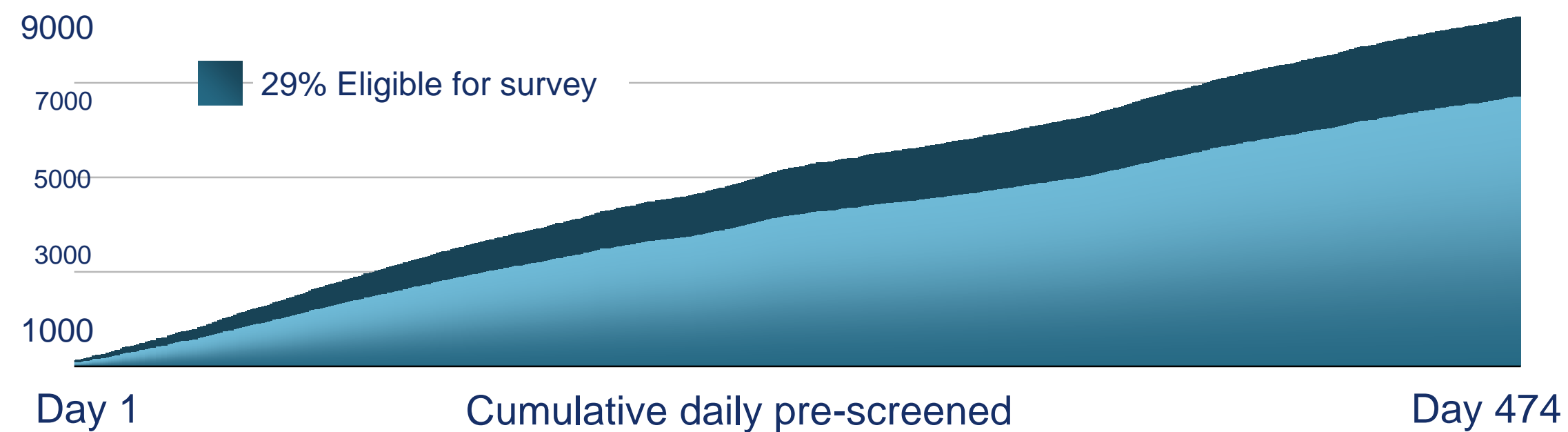
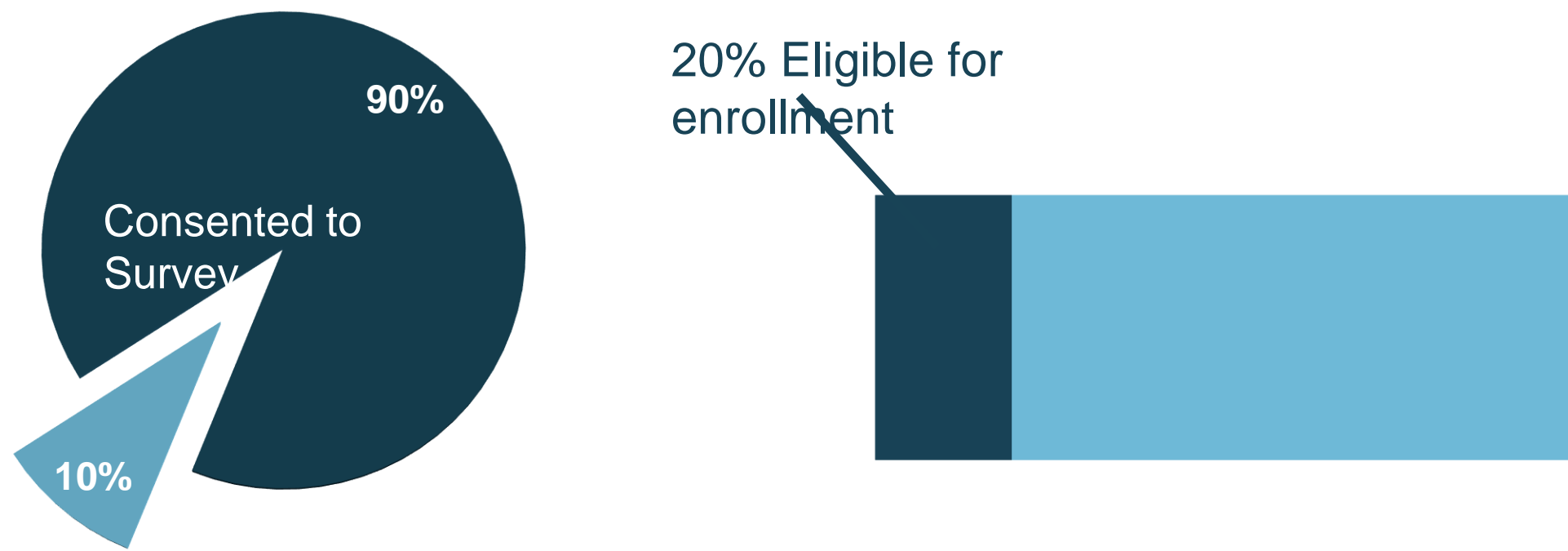
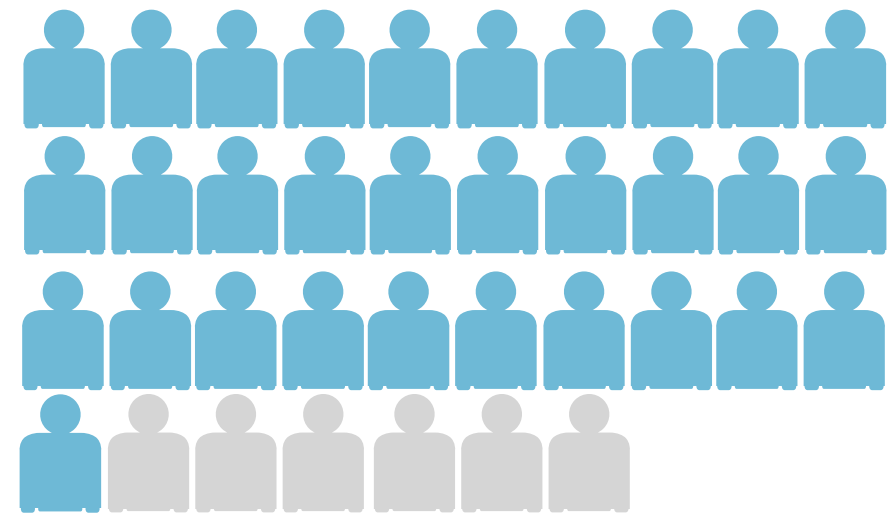
Informed consent is obtained via e-consent

REMOTE INTERVENTION



Phase 1 August 1, 2018 - March 13, 2020

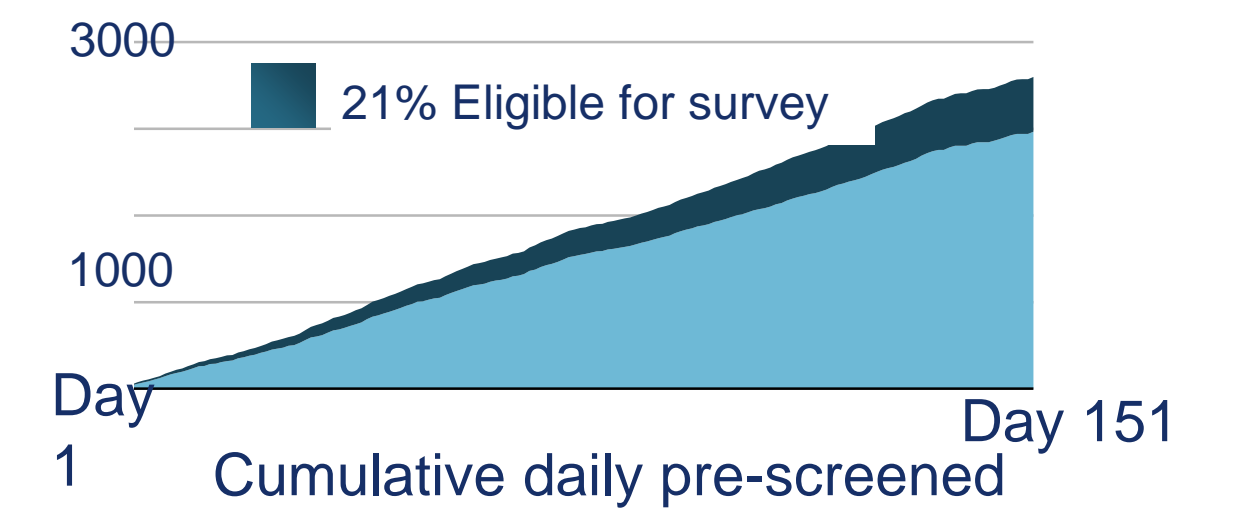
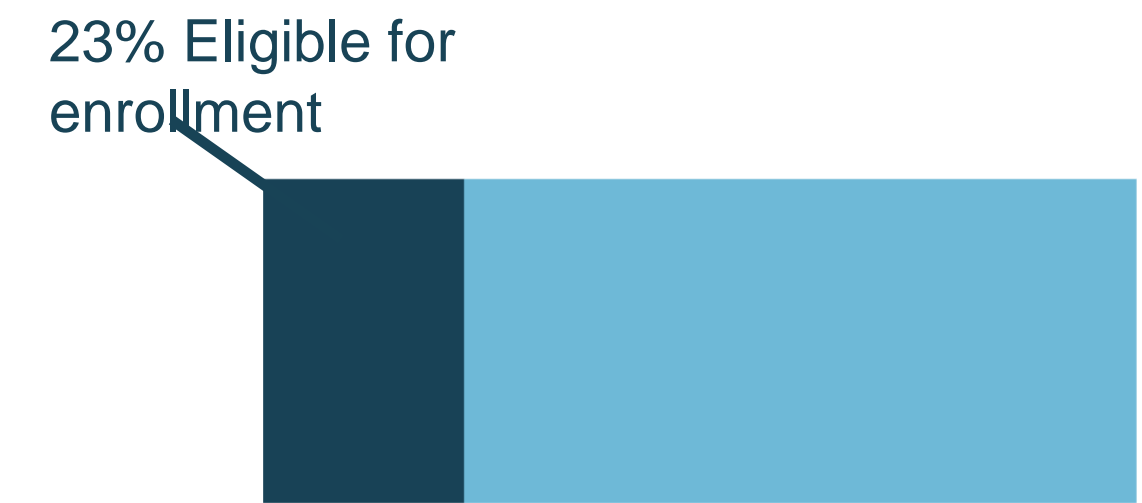
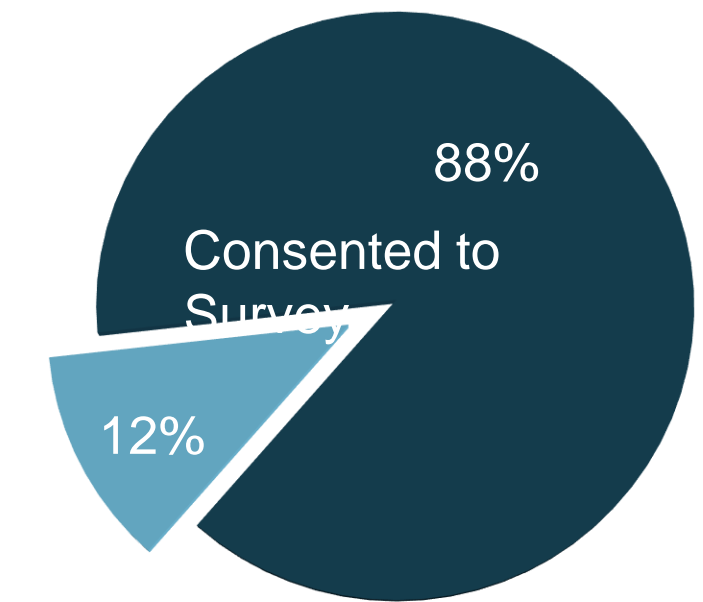
84% (310 out of 371) enrolled



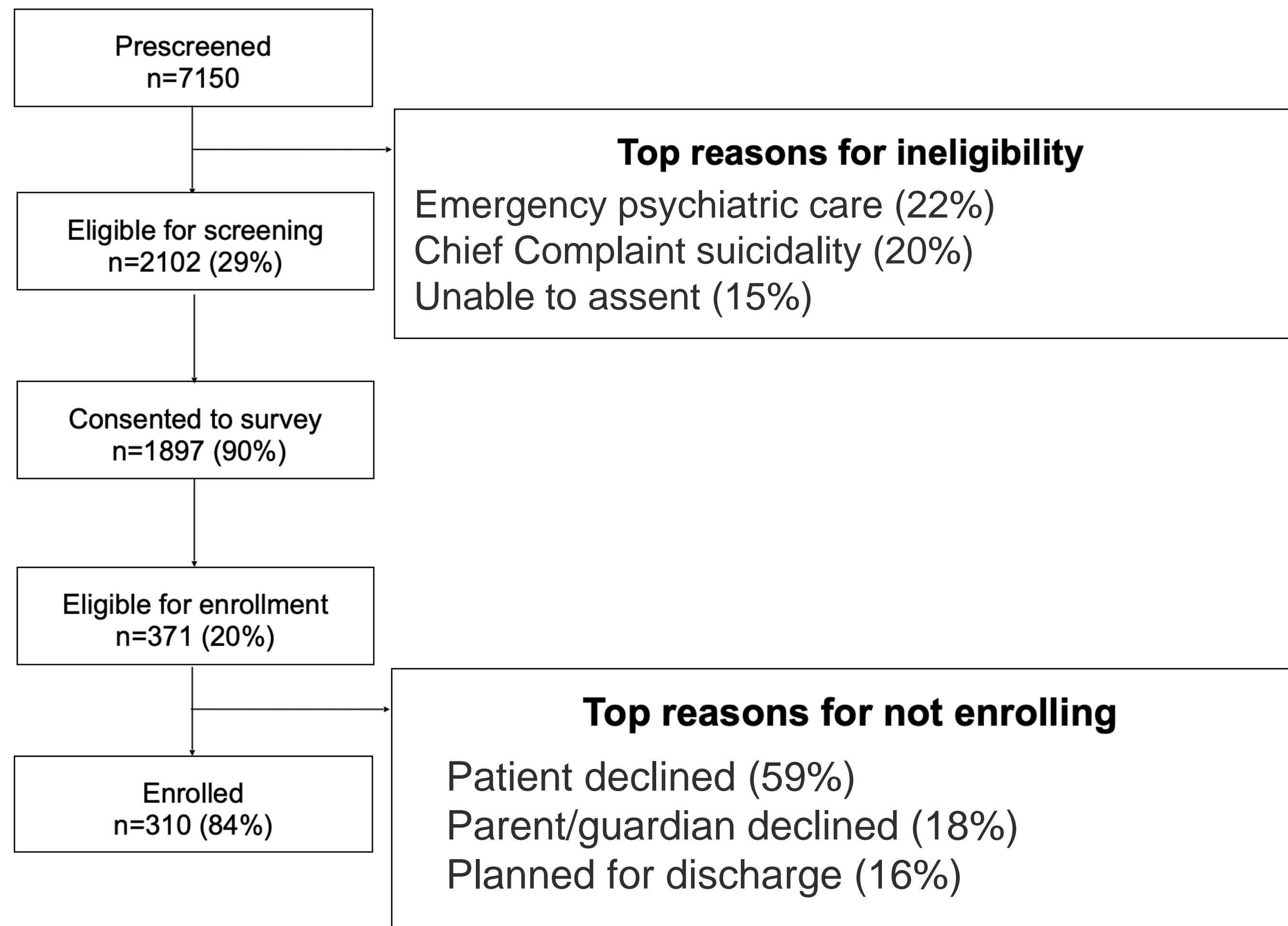
Phase 2 Recruitment paused

Phase 3 August 3, 2020 - Present

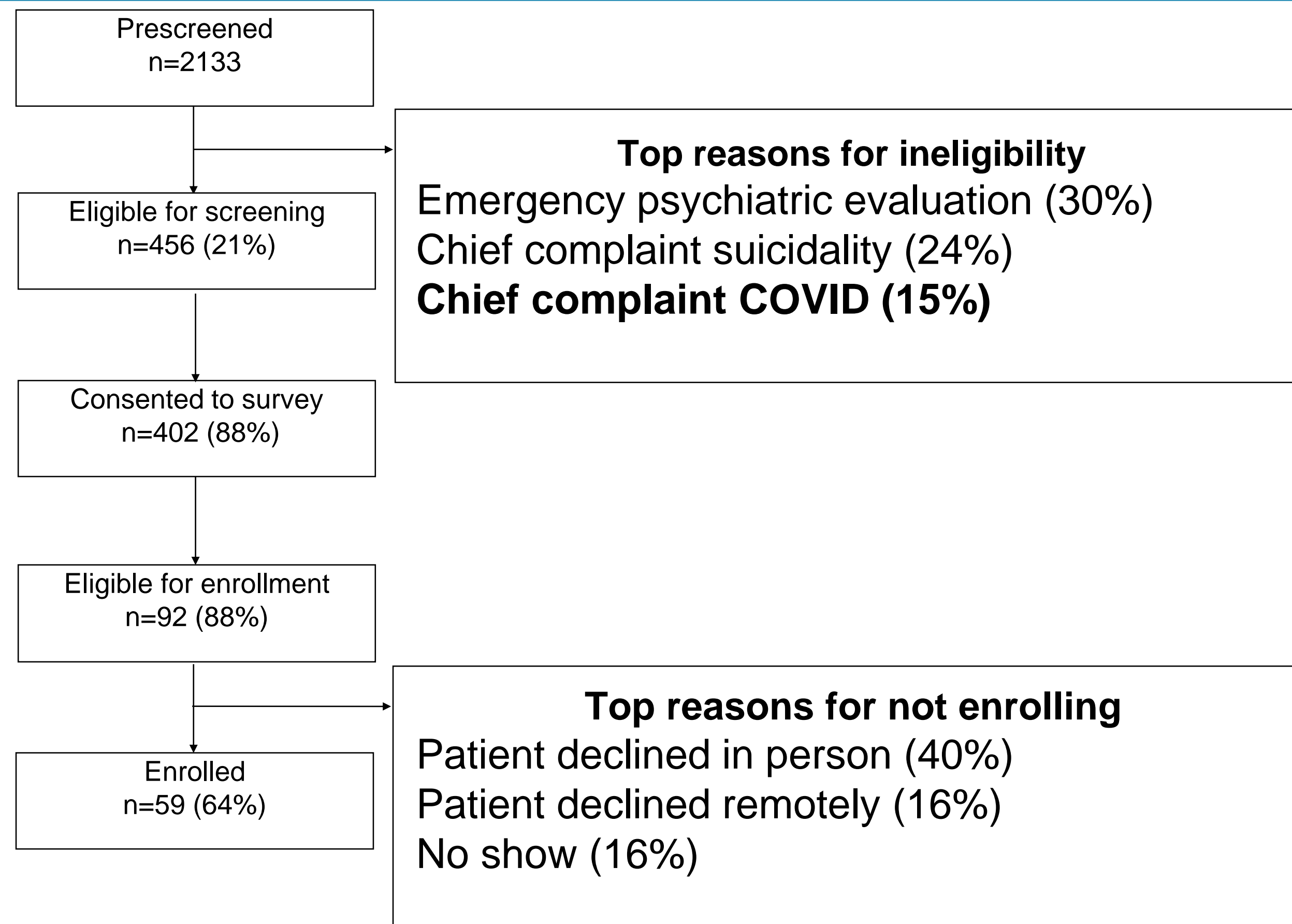
69% (59 out of 92) enrolled



PRE-COVID: CONSORT DIAGRAM



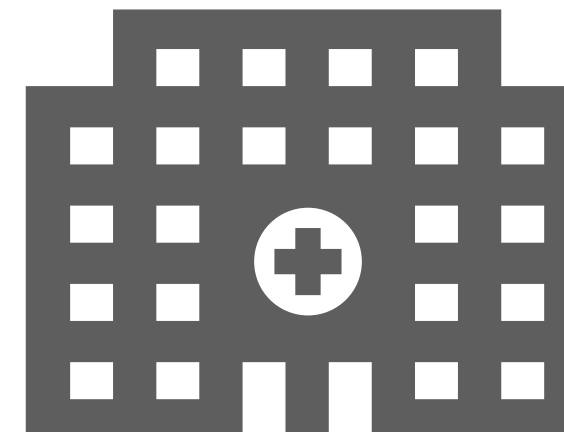
DURING COVID: CONSORT DIAGRAM



FOLLOW-UP RATES PRE-COVID vs. COVID

	Pre-COVID Aug 2018 - March 2020 n = 310	COVID Aug 2020 - Present n = 64
2-months	288 (92%)	44 (69%)
4-months	282 (91%)	29 (45%)
8-months	289 (93%)	3 (5%)

Eligible teens are given a 150- item screener/ baseline survey



Teens who arrive in the RIH ED are prescreened

Eligible teens are given a 48 - item screener to complete in the ED or have the option of completing it at home

Teens who meet inclusion criteria on the screener are invited to participate in the study



Teens who click on an Instagram link are directed to an online screener to determine eligibility

Teens who meet inclusion criteria on the screener are invited to participate in the study

Informed consent is obtained

Teens are enrolled in the study

A 102-item baseline survey is completed remotely

Informed consent is obtained via e-consent

**Help us understand how
teens deal with conflict.**

**Take our
survey to
participate.**

THIS VOLUNTARY RESEARCH STUDY IS CONDUCTED WITH THE CENTER FOR DIGITAL HEALTH AND
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**Help us learn about teen
interactions.**

**Take our
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participate.**

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Remote Recruitment

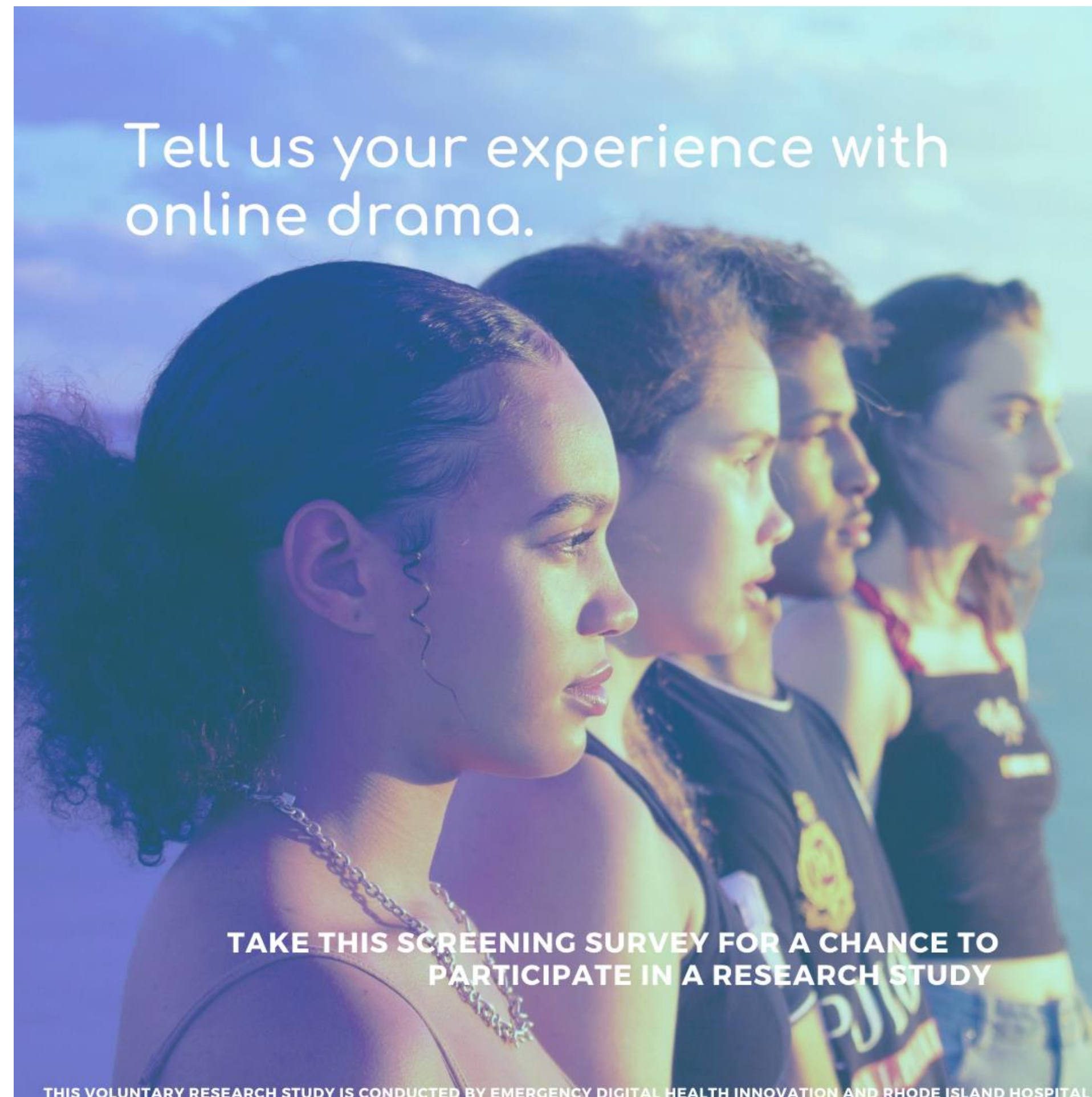


Swipe up for more info about the screening survey and larger study

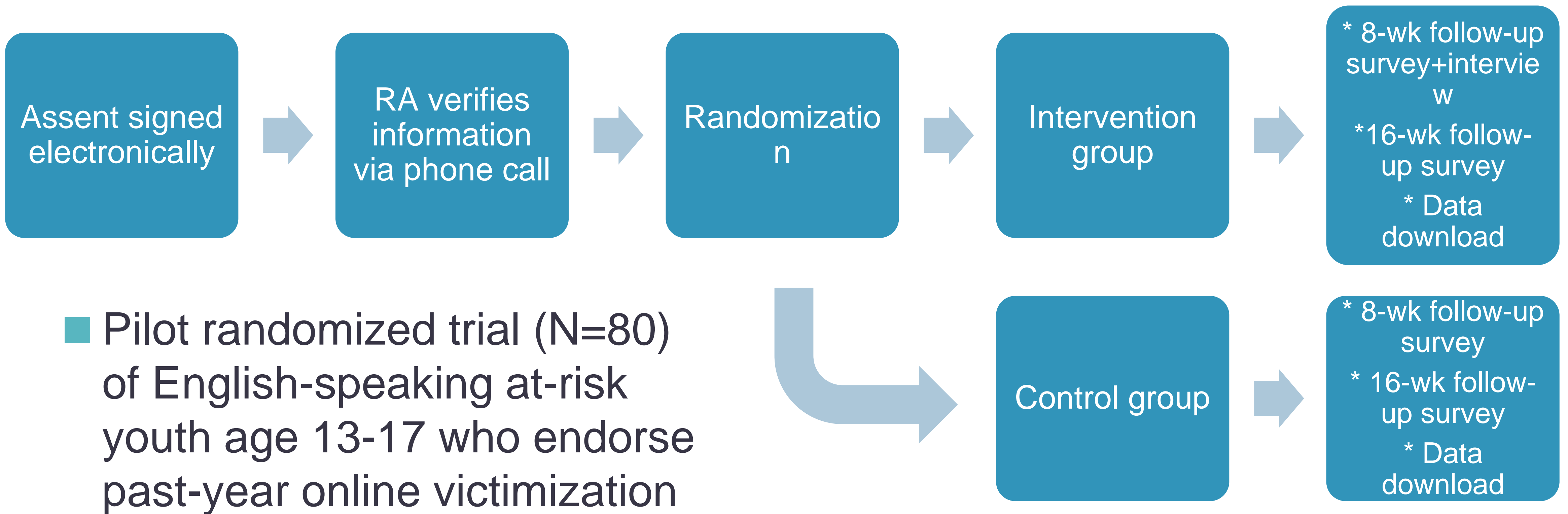
INSTAGRAM STORY ADS



INSTAGRAM FEED ADS



METHODS



PARTICIPANT VERIFICATION



- Six multiple-choice questions were used to confirm study comprehension at enrollment

- Verification process:

- Checked for consistent email addresses, usernames, and/or false addresses
- Phone call to confirm identity
- Collected contact information for participants and parents

We would now like to ask you some questions to make sure that you understand the study that you are being asked to participate in. If you answer a question wrong, you will be directed to the part of the information statement that will help you answer the question. You will have three chances to answer each question correctly.

1) If you agree to be in this study, what are we asking you to do?

- A. I may be put into a group where a 30 minute video session using a video app like FaceTime or Google Hangouts
- B. I may be put in a group that gets daily messages for the 8-weeks
- C. I will be receiving surveys similar to the one I already completed 8-weeks (for a \$30 amazon gift code) and 16-weeks (for a \$40 amazon gift code)
- D. All of the above**

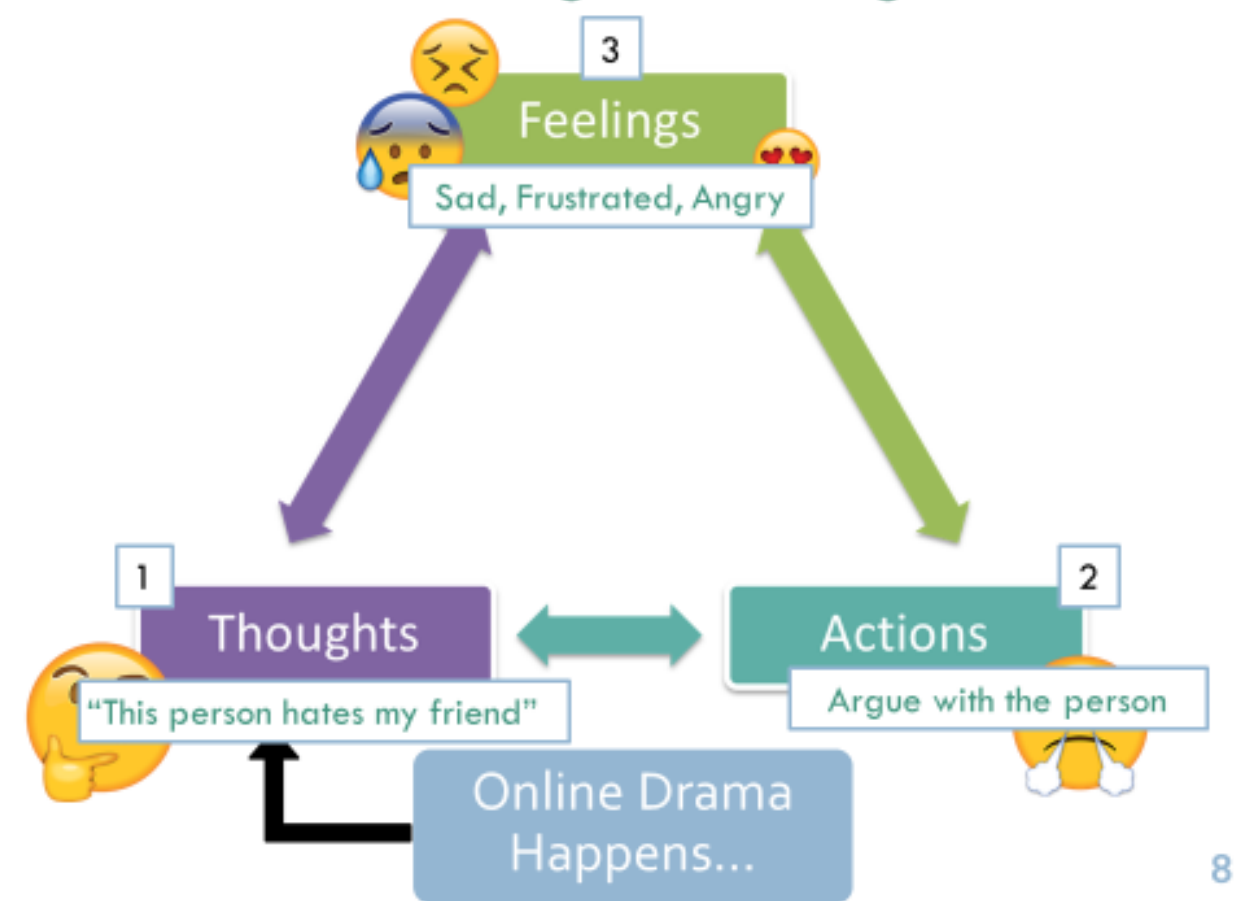
2) In order to receive the \$25 amazon gift code for enrolling I must:

- A. Answer all the questions on the survey
- B. Finish the survey in 10 minutes
- C. Download the "HiPACT" app to my cellphone**
- D. Have an Instagram account

BRIEF REMOTE INTERVENTION



Strategy #1: Use Actions and Thoughts to Change Feelings



Strategy #2: Change things BEFORE it happens

THINK FIRST: before you post, what is the goal of your post?
BE POSITIVE: don't post negative content
PICTURES: be careful about what pictures you post

PRIVACY SETTINGS: know how to use them
BE PRIVATE: Personal pictures and comments are out there forever

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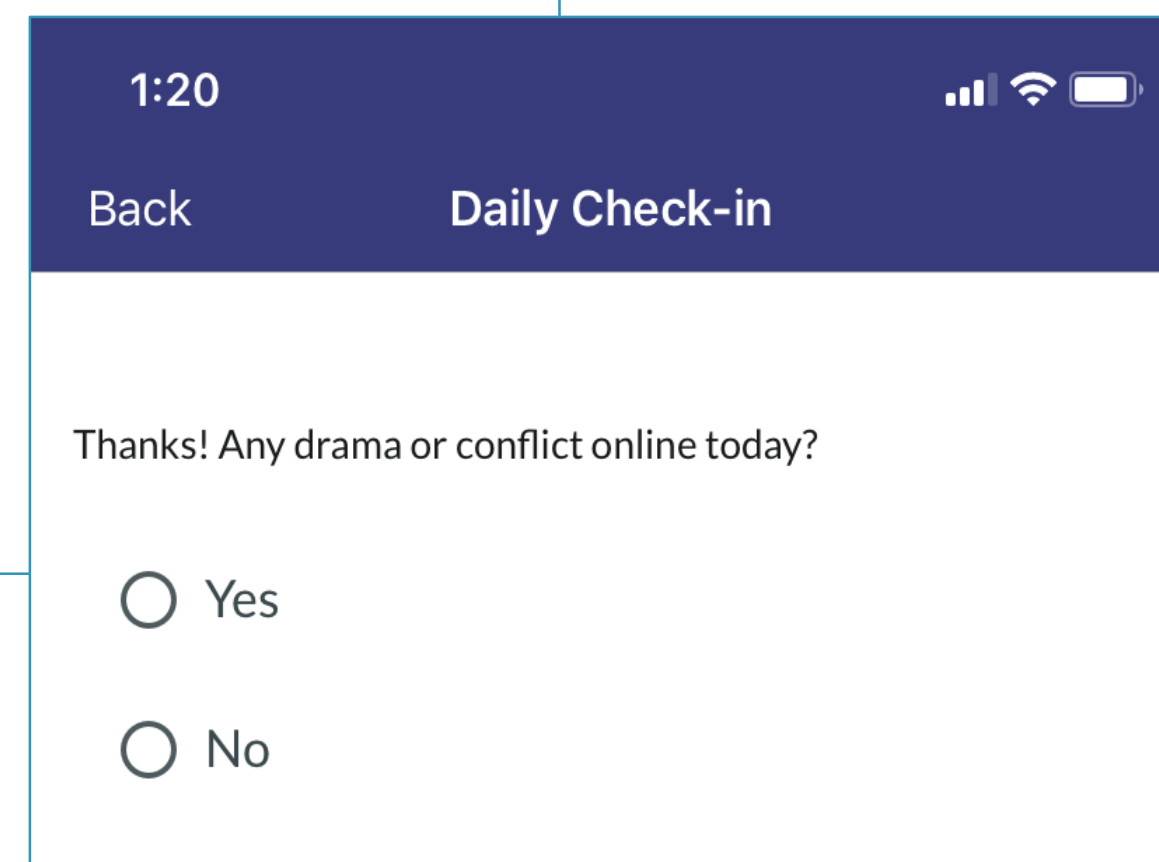
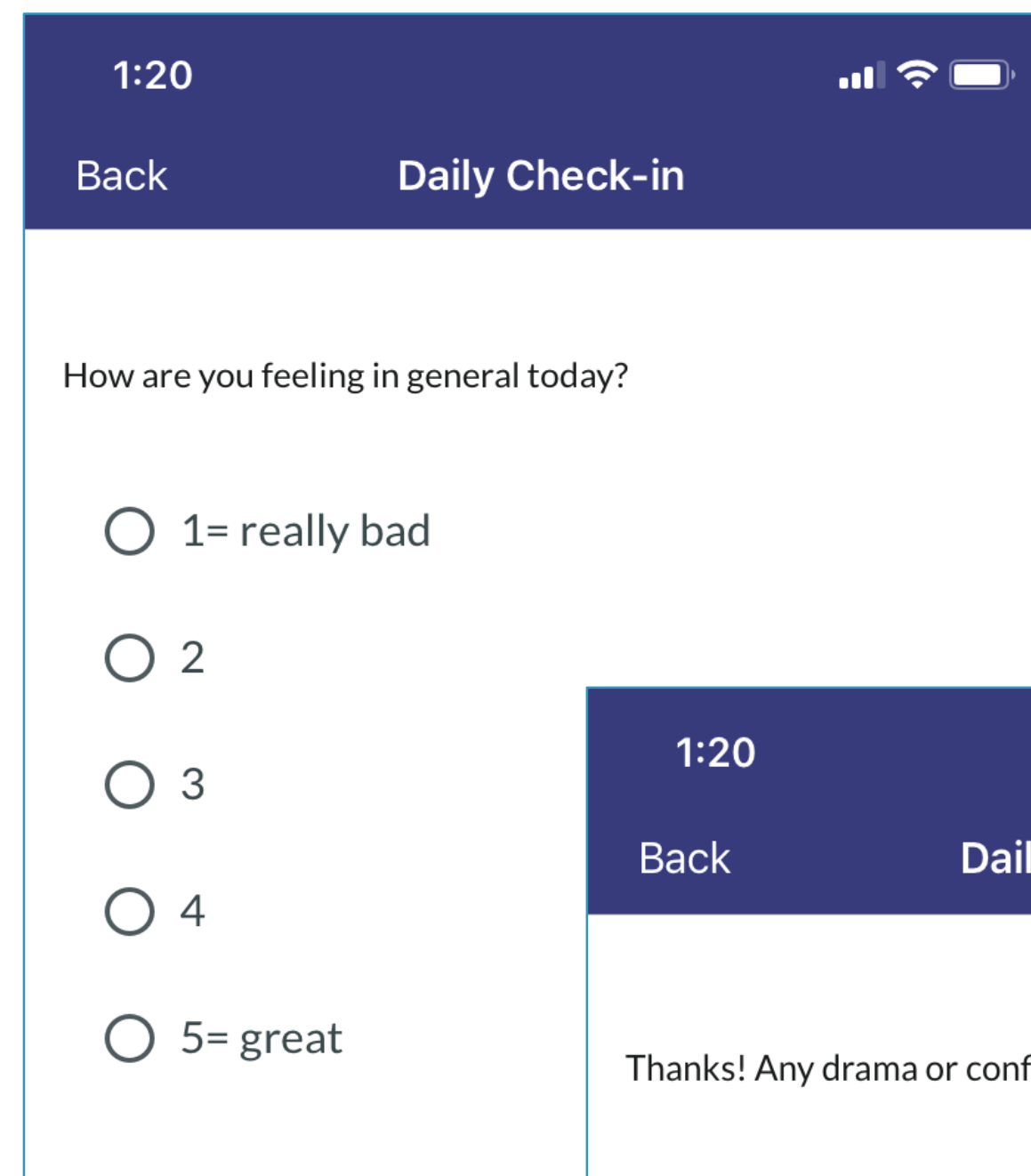
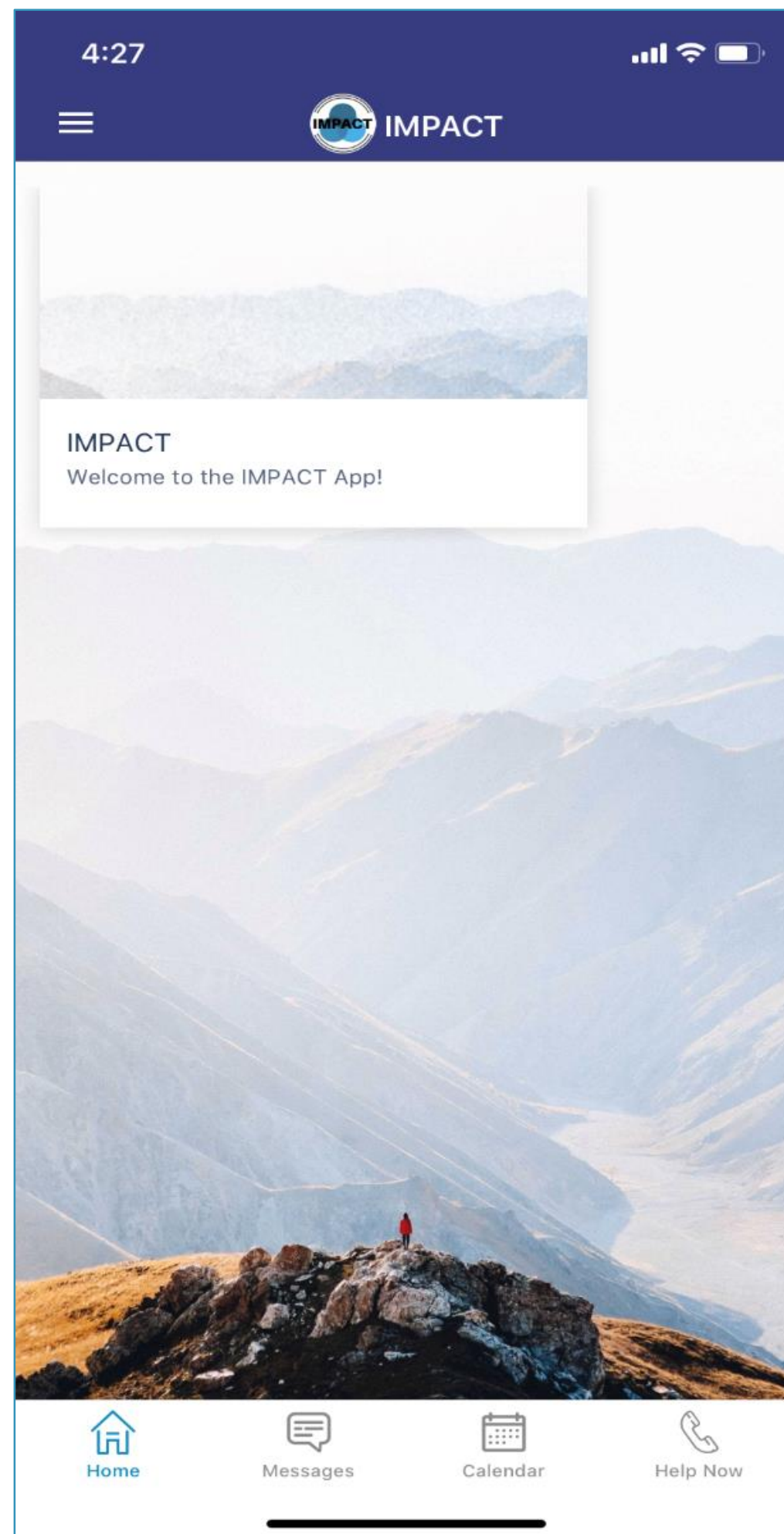
Strategy #3: Help create a POSITIVE environment online!

THINK FIRST: before replying
TAKE A BREAK: know when to go offline for a while (or at least get off certain types of social media)
BYSTANDERS: friends stick up for each other

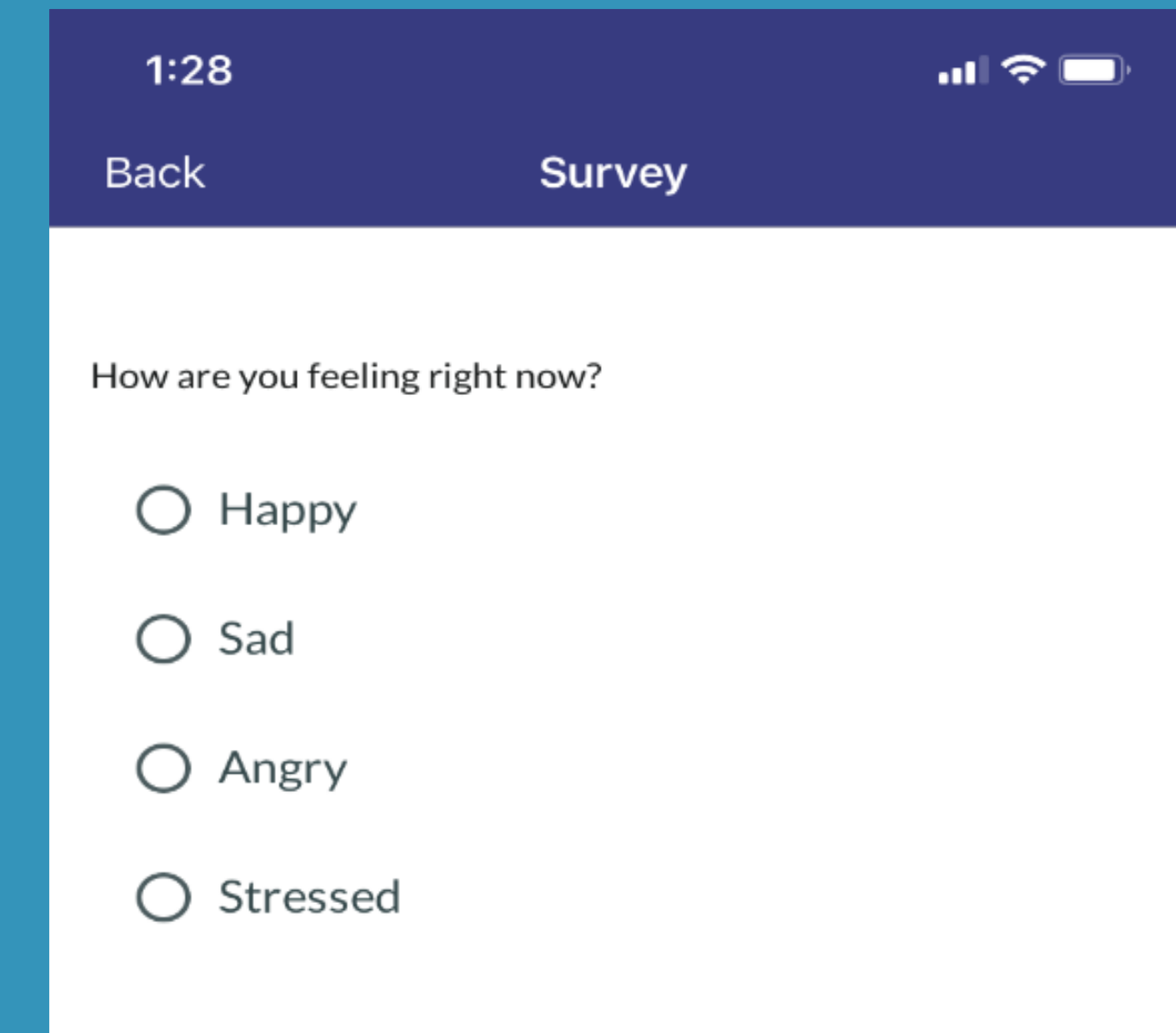
BLOCK: unfriend or block someone bothering or bullying you
ADULTS: know when to involve them

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IMPACT APP



On-Demand Mood Messages



SOCIAL MEDIA DATA DOWNLOAD



- Follow teen on Instagram from study account: @impact_study
- Sochiatrist, Phantom Busters, and anonymization code



Teens' Instagram activity will be downloaded using PhantomBuster, software used to extract data from the web



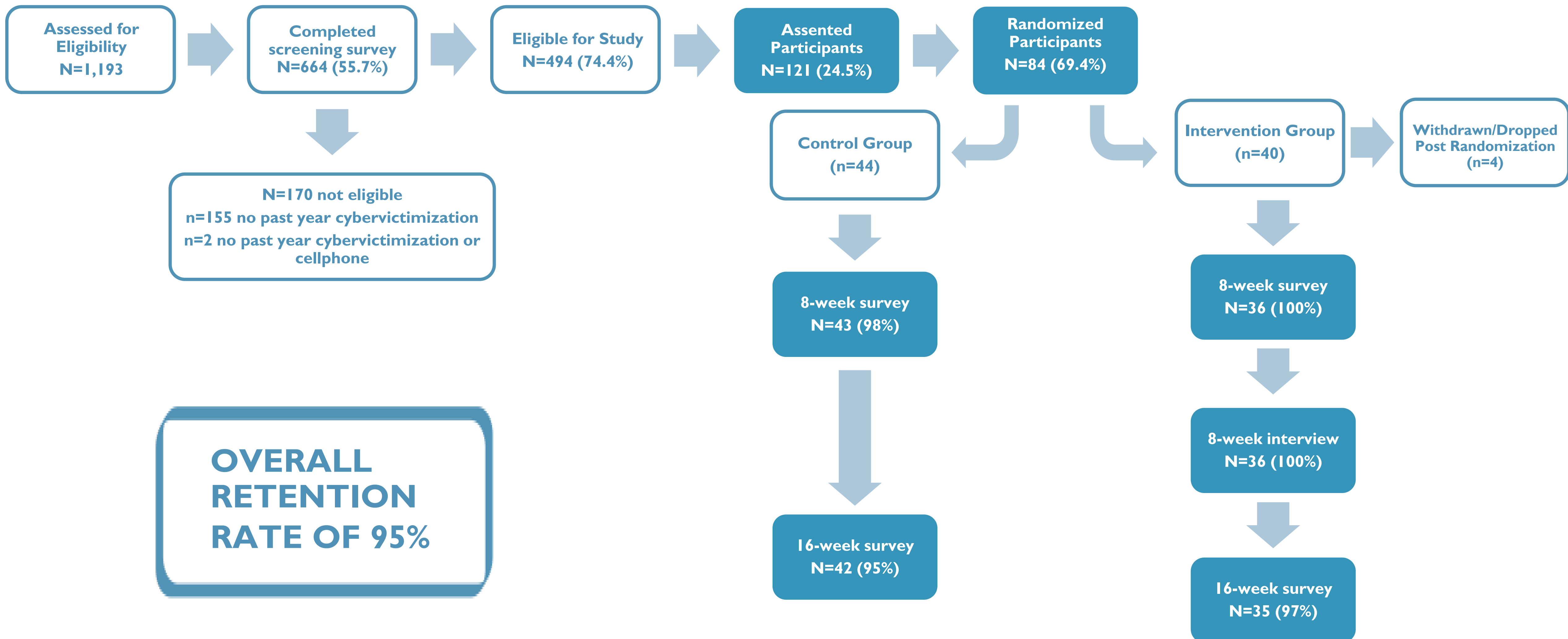
PHANTOM
BUSTER //



Once downloaded, their data will be anonymized with usernames and phone numbers being replaced by a string of numbers

The data is ready to be coded and analyzed once it's been downloaded and anonymized

RECRUITMENT AND RETENTION



RELATIVE COST OF SOCIAL MEDIA RECRUITMENT



	Instagram recruitment (IMPACT)	In-person recruitment (iPACT)
Number of enrolled participants	80	51
Retention at 16 weeks	95%	70.6%
Cost per participant	\$19.06	\$152.00
Hours recruiting	907.5 hrs. (ad runtime)	461.3 hrs. (RA in ED)

BASELINE CHARACTERISTICS (N=80)



Demographics	Intervention (n=36)	Control (n=44)
Age (mean, SD)	15.28 (1.32)	15.36 (1.38)
Gender		
Female	22 (61.1%)	25 (56.8%)
Male	10 (27.8%)	11 (25.0%)
Transgender	4 (11.1%)	8 (18.2%)
Sexual Orientation (not-straight)	16 (47.1%)	28 (66.7%)
Race		
White	24 (66.7%)	30 (68.2%)
Black	6 (16.7%)	5 (11.4%)
Multi-racial	5 (13.9%)	7 (15.9%)
Other	1 (2.8%)	2 (4.5%)
Ethnicity (non-Hispanic)	31 (86.1%)	39 (88.6%)
Low Socio-economic Status	12 (33.3%)	15 (34.1%)
Past-year use of psychological services	16 (44.4%)	22 (50.0%)

Past-year violence exposure	Intervention (n=36)	Control (n=44)
Cyberbullying (UNH)	6.00 (4.76)	4.86 (4.70)
In-person bullying (IBS)	7.86 (4.86)	6.70 (4.71)
Physical fights (FIGHT)	0.11 (0.32)	0.07 (0.33)
Dating violence (CADRI)	1.47 (1.31)	1.05 (0.22)

PRIMARY OUTCOMES

CYBERBULLYING & BYSTANDER INTERVENTIONS (PAST-2-MONTH)

	8-weeks	16-weeks
Number of cyber-victimization episodes	-3.25 (3.32) p=0.35	-0.83 (2.26) p=0.72
Interference of CV episodes with life	-0.31 (0.45) p=0.49	-0.14 (0.54) p=0.79
Emotional effect of CV episodes	0.18 (1.26) p=0.89	0.51 (1.48) p=0.73
<i>Coping methods used after CV episodes</i>	0.82 (0.42) p=0.02	0.74 (0.56) p=0.10
Frequency of observed cyberbullying	0.21 (0.24) p=0.38	0.10 (0.17) p=0.57
Actual frequency of bystander intervention	0.49 (0.45) p=0.28	0.43 (0.49) p=0.39
<i>Intention for bystander intervention</i>	2.65 (1.32) p=0.04	1.82 (1.44) p=0.21

All models include subject specific intercept and are testing intervention vs. control on scores at 8-wks and 16-wks controlling for baseline.

SECONDARY OUTCOMES - MENTAL HEALTH & WELLBEING, OTHER VIOLENCE



	8-weeks	16-weeks
<i>Wellbeing (WHO)</i>	1.17 (0.87) p=0.02	3.24 (0.95) p=0.01
<i>Psychological stress (PROMIS)</i>	-0.66 (0.08) p=0.04	-0.89 (0.09) p<0.01
Positive affect (PROMIS)	0.61 (0.60) p=0.32	0.55 (0.69) p=0.42
<i>Social support (MSPSS)</i>	-0.45 (1.59) p=0.78	3.50 (2.02) p=0.05
Dating violence (CADRI)	0.38 (0.28) p=0.18	1.15 (1.07) p=0.29
<i>Number of physical fights</i>	-0.60 (0.28) p=0.01	-0.07 (0.04) p=0.10
In-person bullying	3.07 (3.00) p=0.41	1.66 (2.70) p=0.60

Help us learn about your
experience with social media

CONNECT-19

TAKE THIS SCREENING SURVEY FOR A CHANCE TO
PARTICIPATE IN A RESEARCH STUDY

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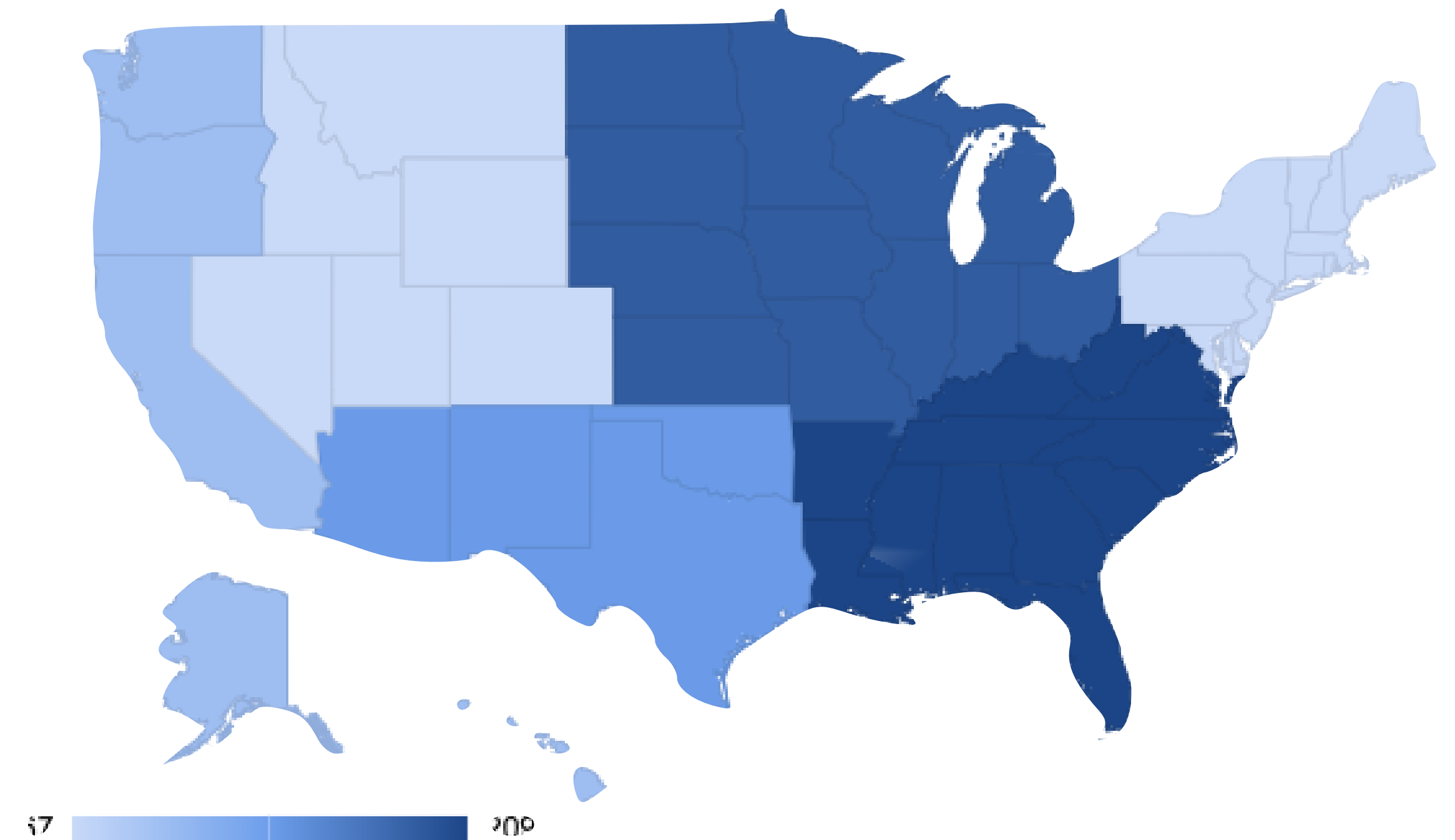
CONNECT-19

CONNECT-19

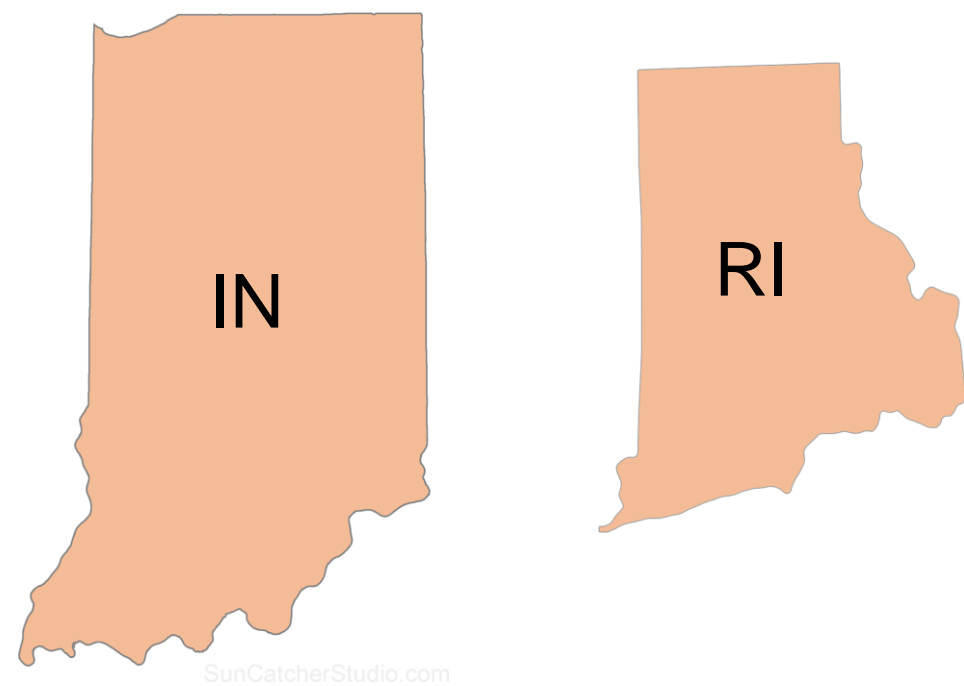
MIXED-METHODS VIRTUAL STUDY

- Examine the correlation between mental wellbeing and COVID-19-related changes in technology use, stressors, school status, and social media use
- Cross-sectional study, conducted during Fall 2020
- Adolescents between the ages of 13-17 were recruited from 42 states via Instagram (n=978)

REGION	Number of participants
Northeast	68 (7.0)
Northwest	67 (6.9)
Southwest	140 (14.3)
Midwest	191 (19.5)
West	100 (10.2)
Valid Zipcode not provided	203 (20.8)



IMPACT OF COVID-19 ON OUD RECOVERY



Over-recruit from two states: Rhode Island + Indiana

Participants will be **remotely recruited using social media** advertisements utilizing methods used in prior studies

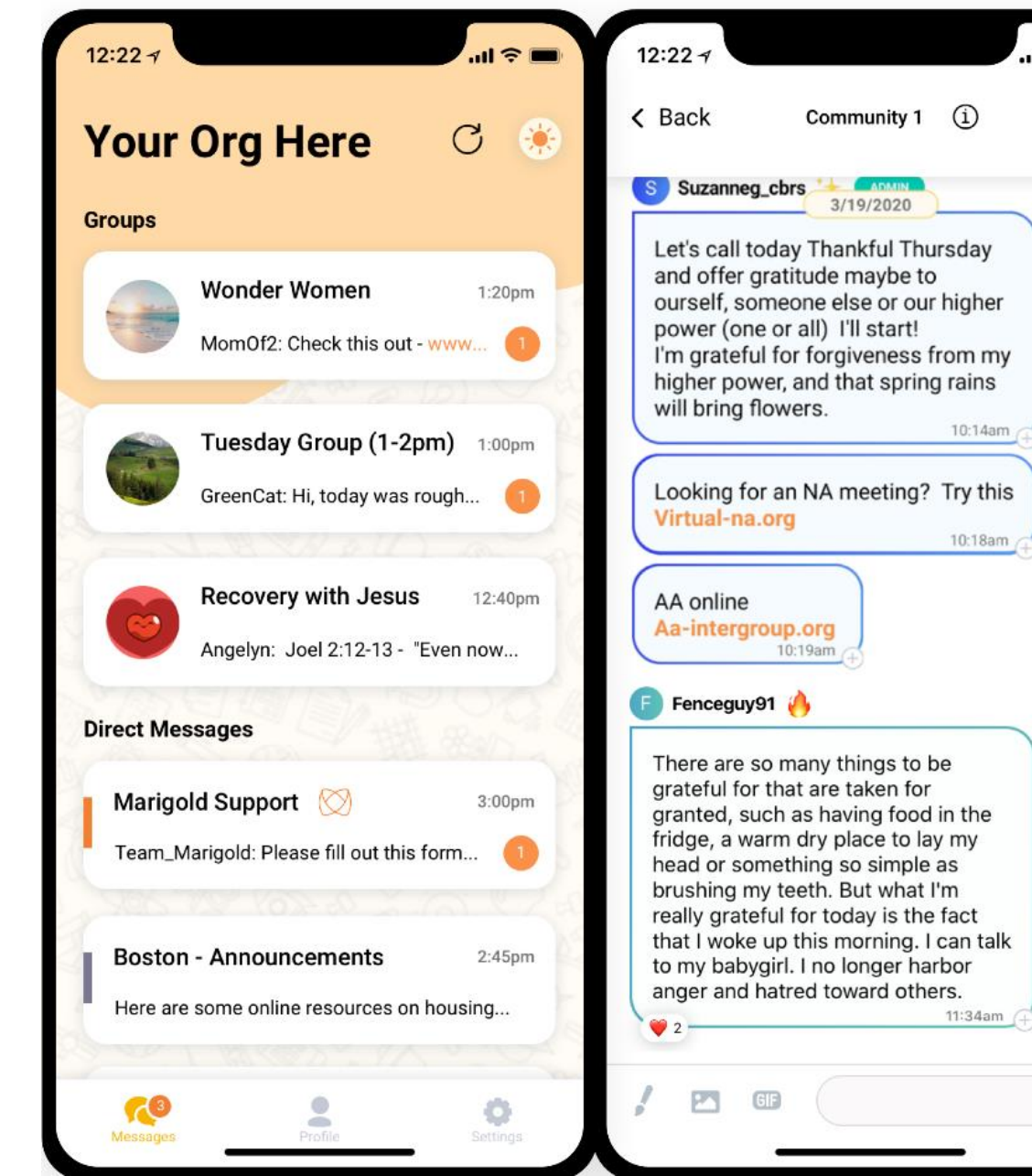
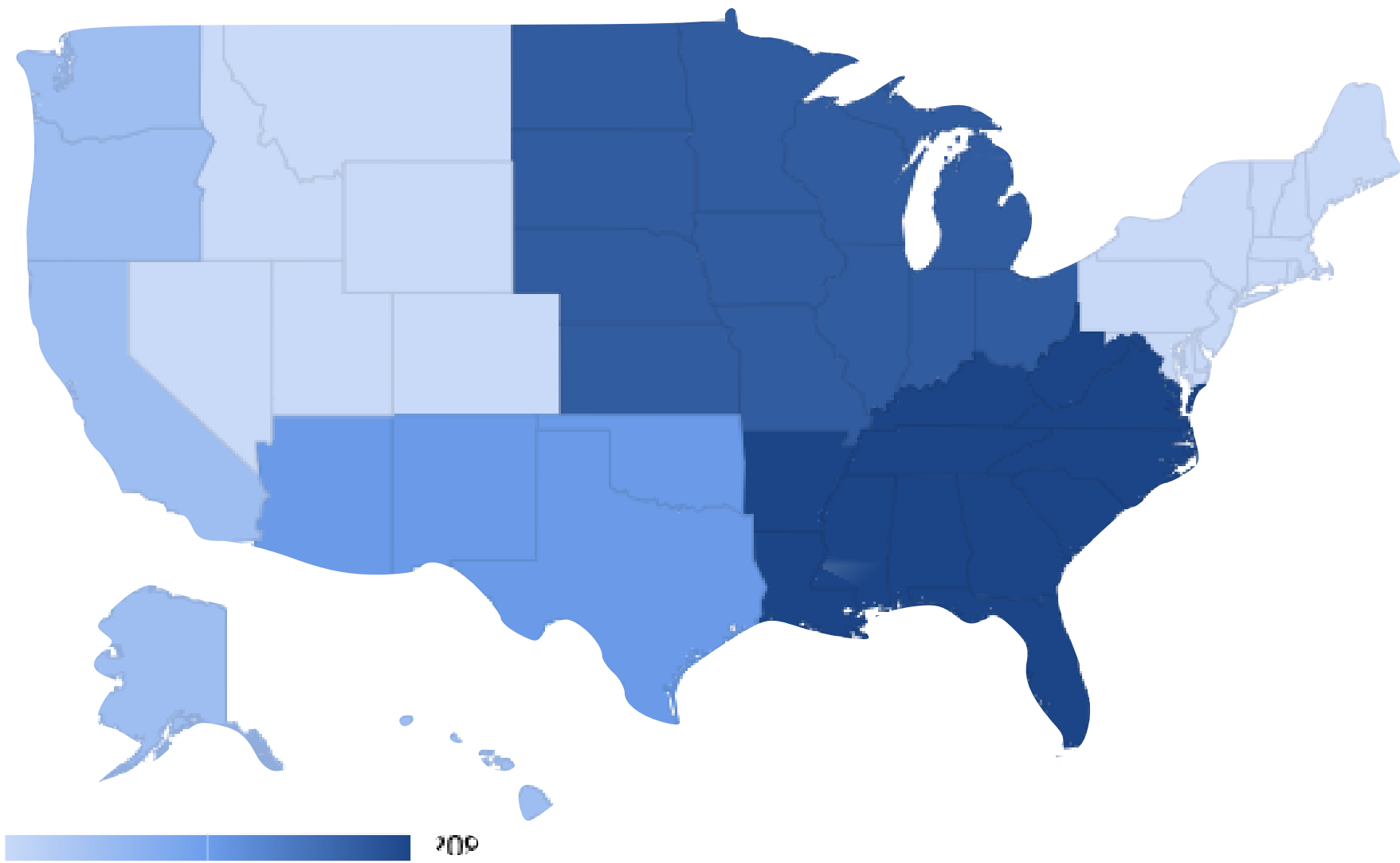
Recruit 60 participants / month

15 RI

15 IN

30 National

3 mixed intervention groups



OUTCOME MEASURES

Effectiveness will be measured at 1, 3, and 6 months

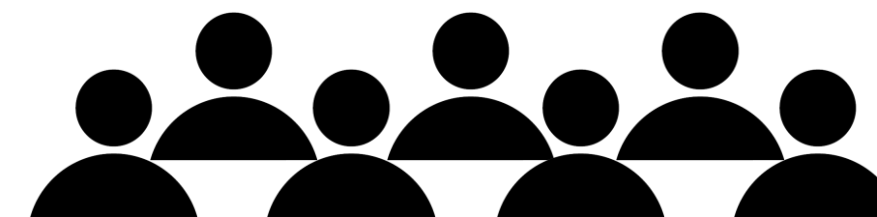


National = 650



- Self-report

RI & IN = 650



- Self-report
- Electronic Health Records (EHR)
- Statewide administrative databases

MYCOVIDRISK.APP

- Used to inform Americans of the risk incurred in engaging in different everyday activities
- Provides up to date information on local disease prevalence, and helps people understand how to reduce their risk without divulging sensitive information



4:32 AT&T 📶 81%

mycovidrisk.app

MyCOVIDRisk



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MyCOVIDRisk

Created by emergency physicians to give you the information you need to know your own COVID-19 risk


[Add to Home Screen](#)

[Know my Risk](#)

[Terms of Use & Privacy Policy](#) [FAQ](#)

Activity Location?


Address, zip code or place name Search




Esri, HERE, Garmin, NGÅ, USGS Powered by Esri

Setting

Where are you going today?



Indoor



Outdoor


4:35 AT&T 📶 80%

mycovidrisk.app

My Risk


What's my risk?

High Risk



Learn More & Lower Risk


Wear a Mask



Homemade

1 layer
loosely woven


2 layers
tightly woven



Surgical

Ear Loops


Tie Strings



N95

Next


Social Distance



← 3 feet

6 feet

9 feet →



Next

MyCOVIDRisk.app

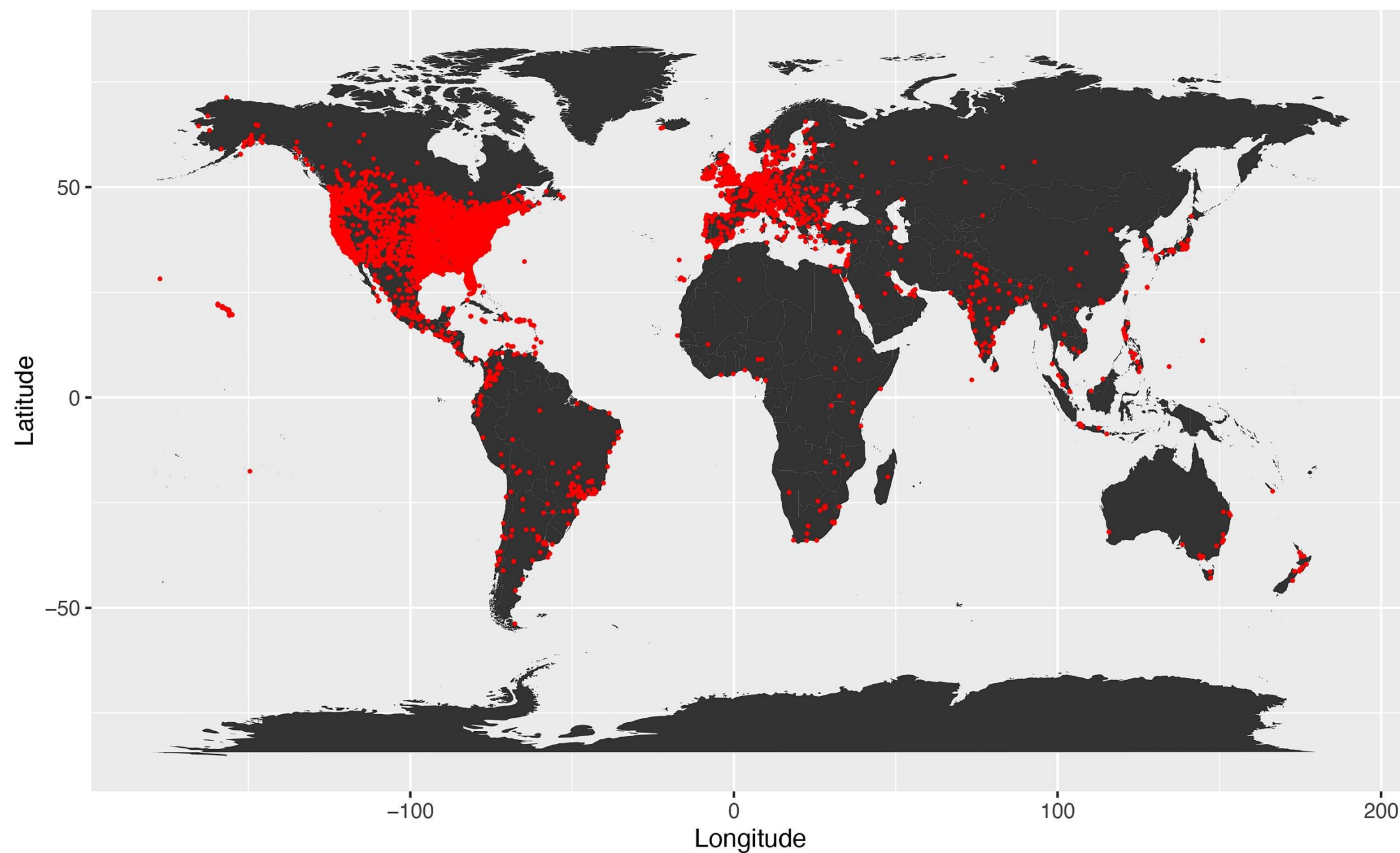
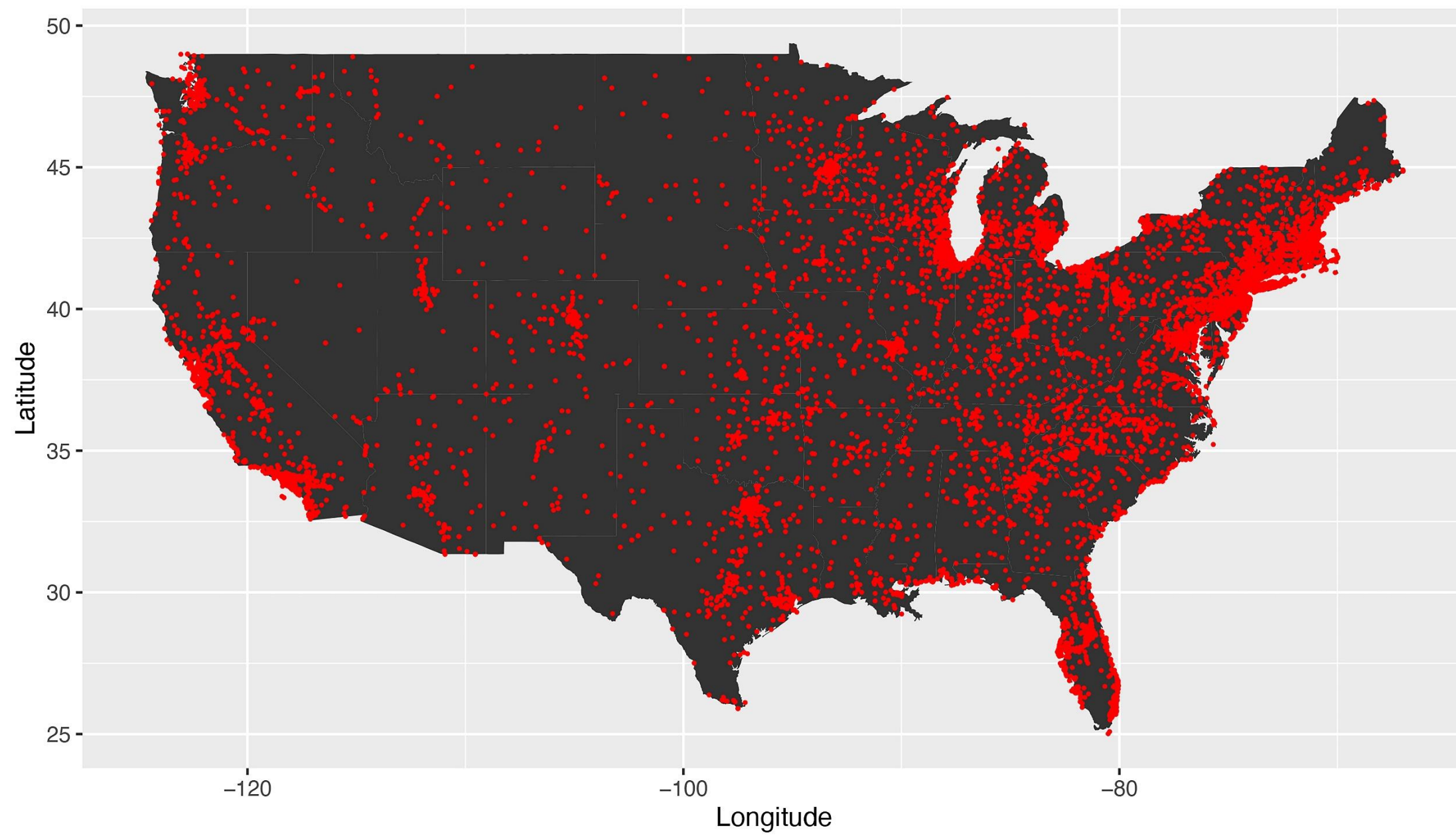


Table 1 Estimated demographics based on the subset of Google users with demographic data available to Google Analytics (14 October–18 December 2020, total N=410 118)

Characteristic	n (%)
New	346 550 (84.5)
Returning	63 568 (15.5)
Age (years)	
18–24	41 421 (10.1)
25–34	118 934 (29.0)
35–44	76 282 (18.6)
45–54	74 231 (18.1)
55–64	59 467 (14.5)
64+	39 781 (9.7)
Device	
Mobile	289 133 (70.5)
Desktop	104 990 (25.6)
Tablet	15 994 (3.9)
Session information	
Average duration	1:22 min
Average # sessions/user	1.4





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@browndigihealth
@meganranney

THANK YOU!



John Pateña, MPH, MA



Justin D. Richard, MMCi



Charlotte Bingaman, MEd,
MArch



Rebecca Laferriere



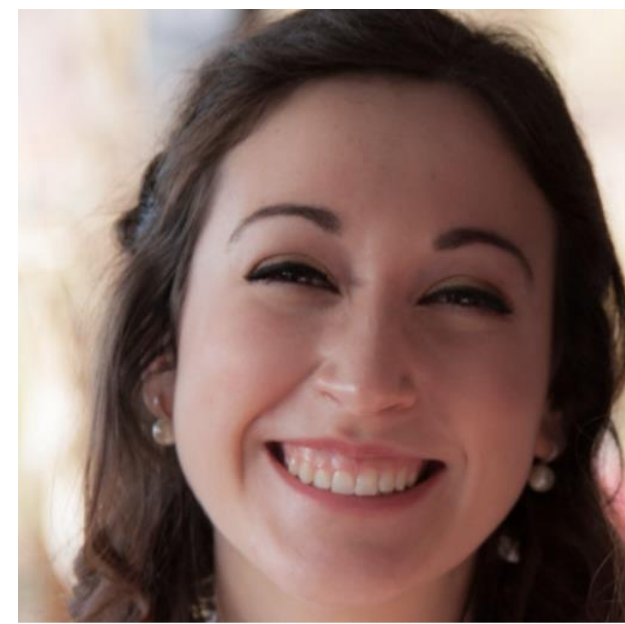
Mary Vrinotis, MS



Jennifer Leaño



Selena Evora, MPH



Emily Kutok



Leah Salzano



Caroline Scherzer



Langa Bakhuluma-Ncube



Paola Jiménez Muñoz



Elisa Liang



Megan Ranney MD, MPH,



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Nicole Nugent, PhD

USABILITY & FEASIBILITY - AMONG INTERVENTION GROUP (N=36)



Daily messages responded (mean, SD)	3.62 (1.00)
% participants who responded each day	89%
Number of “crave messages” requested	71
How satisfied with IMPACT overall?	70% very satisfied 30% moderately satisfied
How satisfied with IMPACT app?	39% very satisfied 53% moderately satisfied 8% not at all
Assign a grade to IMPACT	42% A 50% B 8% C
Would you recommend IMPACT?	86% yes
IMPACT had a positive effect on you	94% yes

How enjoyable was it being recruited online?	67% very enjoyable 33% somewhat enjoyable
Frequency of messages appropriate?	86% just right 14% too much
Messages interfere with usual activities	97% no
Which part of IMPACT was most helpful?	61% messages in app 28% online session 8% other 3% neither

RECRUITMENT NUMBERS

	During COVID starting Aug 2020	Entire Study Aug 2018 – April 2021
Total days recruited	151	625
Pre-screened	2133	9283
Eligible for survey	456 (21%)	2558 (28%)
Consented to survey	402 (88%)	2299 (90%)
Eligible for enrollment	92 (23%)	463 (20%)
Enrolled	59 (64%)	369 (80%)

Follow-Up Numbers

- 2-Month Follow-up survey rate = 94%
- 4-Month Follow-up survey rate = 93%
- 8-Month Follow-up survey rate = 95%