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

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ASSOCIATE DEAN OF STRATEGY AND INNOVATION, BROWN UNIVERSITY SCHOOL OF PUBLIC HEALTH
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Funded by NIH, CDC, foundation grants
President of Board (volunteer) of GetUsPPE
Chief Research Officer (volunteer) of AFFIRM Research
Unrelated talks for Medscape
The ER
Front door to health care
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

- Desktop or laptop computer: 82% (White), 58% (Black), 57% (Hispanic)
- Home broadband: 79% (White), 66% (Black), 61% (Hispanic)
- Smartphone: 82% (White), 80% (Black), 79% (Hispanic)
- Tablet computer: 53% (White), 58% (Black), 43% (Hispanic)
- All of the above: 40% (White), 33% (Black), 28% (Hispanic)

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

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

- <$30K: 12% (2013), 26% (2016), 14% (2019)
- $100K+: 4% (2013), 4% (2016), 5% (2019)

Note: Respondents who did not give an answer are not shown.

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

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

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

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.

**Strategic Priorities**

**PRACTICAL RESEARCH**

**EXPERIENTIAL EDUCATION**

**SCALING FOR IMPACT**

**COLLABORATE TO INNOVATE**

**OPERATIONS**

**PROGRAM MANAGEMENT + COMMUNICATIONS**

**FINANCIAL ADMINISTRATION + FUNDRAISING**

**PARTNERSHIPS + COLLABORATIONS**
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
Teens are enrolled in the study

Informed consent is obtained

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
Teens who meet inclusion criteria on the screener are invited to participate in the study. Teens are enrolled in the study and informed consent is obtained. Eligible teens are given a 150-item screener/baseline survey. Teens who arrive in the RIH ED are prescreened. Informed consent is obtained via e-consent. Teens who meet inclusion criteria on the screener are invited to participate in the study. Eligible teens are given a 48-item baseline survey to complete in the ED or have the option of completing it at home. Teens who arrive in the RIH ED are prescreened. A 102-item baseline survey is completed remotely.
REMOTE INTERVENTION
Phase 1
August 1, 2018 - March 13, 2020

84% (310 out of 371) enrolled

20% Eligible for enrollment

Consented to Survey

90%

10%

Day 1
Cumulative daily pre-screened

Day 474

Phase 2
Recruitment paused

Day 1
Cumulative daily pre-screened

Day 151

Phase 3
August 3, 2020 - Present

69% (59 out of 92) enrolled

23% Eligible for enrollment

Consented to Survey

88%

12%

Day 1
Cumulative daily pre-screened

Day 151

PRE-COVID: CONSORT DIAGRAM

Top reasons for ineligibility
- Emergency psychiatric care (22%)
- Chief Complaint suicidality (20%)
- Unable to assent (15%)

Top reasons for not enrolling
- Patient declined (59%)
- Parent/guardian declined (18%)
- Planned for discharge (16%)
DURING COVID: CONSORT DIAGRAM

Prescreened
n=2133

Eligible for screening
n=456 (21%)

Consented to survey
n=402 (88%)

Eligible for enrollment
n=92 (88%)

Top reasons for ineligibility
Emergency psychiatric evaluation (30%)
Chief complaint suicidality (24%)
Chief complaint COVID (15%)

Enrolled
n=59 (64%)

Top reasons for not enrolling
Patient declined in person (40%)
Patient declined remotely (16%)
No show (16%)
# Follow-up Rates Pre-COVID vs. COVID

<table>
<thead>
<tr>
<th>Duration</th>
<th>Pre-COVID Aug 2018 - March 2020 n = 310</th>
<th>COVID Aug 2020 - Present n = 64</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-months</td>
<td>288 (92%)</td>
<td>44 (69%)</td>
</tr>
<tr>
<td>4-months</td>
<td>282 (91%)</td>
<td>29 (45%)</td>
</tr>
<tr>
<td>8-months</td>
<td>289 (93%)</td>
<td>3 (5%)</td>
</tr>
</tbody>
</table>
Teens who meet inclusion criteria on the screener are invited to participate in the study.

Informed consent is obtained via e-consent.

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

Teens who arrive in the RIH ED are prescreened.

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

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

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

Informed consent is obtained via e-consent.

A 102-item baseline survey is completed remotely.

Teens are enrolled in the study.
Help us understand how teens deal with conflict.

Help us learn about teen interactions.

Take our survey to participate.

This voluntary research study is conducted with the Center for Digital Health and Rhode Island Hospital.
INSTAGRAM STORY ADS

Help us learn about online drama.

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

THIS VOLUNTARY RESEARCH STUDY IS CONDUCTED BY EMERGENCY DIGITAL HEALTH INNOVATIONS AND RHODE ISLAND HOSPITAL.
Tell us your experience with online drama.

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

THIS VOLUNTARY RESEARCH STUDY IS CONDUCTED BY EMERGENCY DIGITAL HEALTH INNOVATION AND DORDER ISLAND HOSPITAL
METHODS

- Pilot randomized trial (N=80) of English-speaking at-risk youth age 13-17 who endorse past-year online victimization
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

1. Thoughts
   - "This person hates my friend!"
2. Actions
   - Argue with the person

Feelings: Sad, Frustrated, Angry

Online Drama Happens...

Strategy #2: Change things BEFORE it happens

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

Strategy #3: Help create a POSITIVE environment online!

1. THINK FIRST before replying
2. TAKE A BREAK: know when to go offline for a while or at least get rid of a type of add in media
3. BYSTANDERS: friends stick up for each other
4. BLOCK: unfriend or block someone bothering or bullying you
5. ADULTS: know when to involve them

PRIVACY SETTINGS: know how to use them
BE PRIVATE: Personal pictures and comments are not there forever
IMPACT APP

On-Demand Mood Messages

1:20
Daily Check-in

How are you feeling in general today?

- 1 = really bad
- 2
- 3
- 4
- 5 = great

1:20
Daily Check-in

Thanks! Any drama or conflict online today?

- Yes
- No

1:28
Survey

How are you feeling right now?

- Happy
- Sad
- Angry
- Stressed
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. 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

OVERALL RETENTION RATE OF 95%
### Relative Cost of Social Media Recruitment

<table>
<thead>
<tr>
<th></th>
<th>Instagram Recruitment (IMPACT)</th>
<th>In-person Recruitment (iPACT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of enrolled participants</td>
<td>80</td>
<td>51</td>
</tr>
<tr>
<td>Retention at 16 weeks</td>
<td>95%</td>
<td>70.6%</td>
</tr>
<tr>
<td>Cost per participant</td>
<td>$19.06</td>
<td>$152.00</td>
</tr>
<tr>
<td>Hours recruiting</td>
<td>907.5 hrs. (ad runtime)</td>
<td>461.3 hrs. (RA in ED)</td>
</tr>
</tbody>
</table>
# BASELINE CHARACTERISTICS (N=80)

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

<table>
<thead>
<tr>
<th>Past-year violence exposure</th>
<th>Intervention (n=36)</th>
<th>Control (n=44)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyberbullying (UNH)</td>
<td>6.00 (4.76)</td>
<td>4.86 (4.70)</td>
</tr>
<tr>
<td>In-person bullying (IBS)</td>
<td>7.86 (4.86)</td>
<td>6.70 (4.71)</td>
</tr>
<tr>
<td>Physical fights (FIGHT)</td>
<td>0.11 (0.32)</td>
<td>0.07 (0.33)</td>
</tr>
<tr>
<td>Dating violence (CADRI)</td>
<td>1.47 (1.31)</td>
<td>1.05 (0.22)</td>
</tr>
</tbody>
</table>
### PRIMARY OUTCOMES

**CYBERBULLYING & BYSTANDER INTERVENTIONS (PAST-2-MONTH)**

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

All models include subject specific intercept and are testing intervention vs. control on scores at 8-wks and 16-wks controlling for baseline.
<table>
<thead>
<tr>
<th>Outcome</th>
<th>8-weeks Mean (SD)</th>
<th>16-weeks Mean (SD)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wellbeing (WHO)</strong></td>
<td>1.17 (0.87)</td>
<td>3.24 (0.95)</td>
<td>0.02</td>
</tr>
<tr>
<td><strong>Psychological stress (PROMIS)</strong></td>
<td>-0.66 (0.08)</td>
<td>-0.89 (0.09)</td>
<td>0.04</td>
</tr>
<tr>
<td>Positive affect (PROMIS)</td>
<td>0.61 (0.60)</td>
<td>0.55 (0.69)</td>
<td>0.32</td>
</tr>
<tr>
<td><strong>Social support (MSPSS)</strong></td>
<td>-0.45 (1.59)</td>
<td>3.50 (2.02)</td>
<td>0.78</td>
</tr>
<tr>
<td>Dating violence (CADRI)</td>
<td>0.38 (0.28)</td>
<td>1.15 (1.07)</td>
<td>0.18</td>
</tr>
<tr>
<td><strong>Number of physical fights</strong></td>
<td>-0.60 (0.28)</td>
<td>-0.07 (0.04)</td>
<td>0.01</td>
</tr>
<tr>
<td>In-person bullying</td>
<td>3.07 (3.00)</td>
<td>1.66 (2.70)</td>
<td>0.41</td>
</tr>
</tbody>
</table>
Help us learn about your experience with social media

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

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)

<table>
<thead>
<tr>
<th>REGION</th>
<th>Number of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northeast</td>
<td>68 (7.0)</td>
</tr>
<tr>
<td>Northwest</td>
<td>67 (6.9)</td>
</tr>
<tr>
<td>Southwest</td>
<td>140 (14.3)</td>
</tr>
<tr>
<td>Midwest</td>
<td>191 (19.5)</td>
</tr>
<tr>
<td>West</td>
<td>100 (10.2)</td>
</tr>
<tr>
<td>Valid Zipcode not provided</td>
<td>203 (20.8)</td>
</tr>
</tbody>
</table>
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

- Self-report

National = 650

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
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)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>New</td>
<td>346,550 (84.5)</td>
</tr>
<tr>
<td>Returning</td>
<td>63,568 (15.5)</td>
</tr>
<tr>
<td>Age (years)</td>
<td></td>
</tr>
<tr>
<td>18–24</td>
<td>41,421 (10.1)</td>
</tr>
<tr>
<td>25–34</td>
<td>118,934 (29.0)</td>
</tr>
<tr>
<td>35–44</td>
<td>76,282 (18.6)</td>
</tr>
<tr>
<td>45–54</td>
<td>74,231 (18.1)</td>
</tr>
<tr>
<td>55–64</td>
<td>59,467 (14.5)</td>
</tr>
<tr>
<td>64+</td>
<td>39,781 (9.7)</td>
</tr>
<tr>
<td>Device</td>
<td></td>
</tr>
<tr>
<td>Mobile</td>
<td>289,133 (70.5)</td>
</tr>
<tr>
<td>Desktop</td>
<td>104,990 (25.6)</td>
</tr>
<tr>
<td>Tablet</td>
<td>15,994 (3.9)</td>
</tr>
<tr>
<td>Session information</td>
<td></td>
</tr>
<tr>
<td>Average duration</td>
<td>1:22 min</td>
</tr>
<tr>
<td>Average # sessions/user</td>
<td>1.4</td>
</tr>
</tbody>
</table>
THANK YOU!
<table>
<thead>
<tr>
<th><strong>USABILITY &amp; FEASIBILITY - AMONG INTERVENTION GROUP (N=36)</strong></th>
</tr>
</thead>
</table>

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

**Follow-Up Numbers**

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