The Role of Culture and Equity in Digital Mental Health

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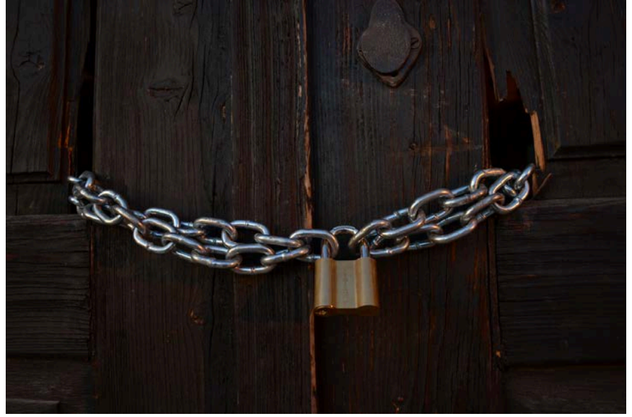
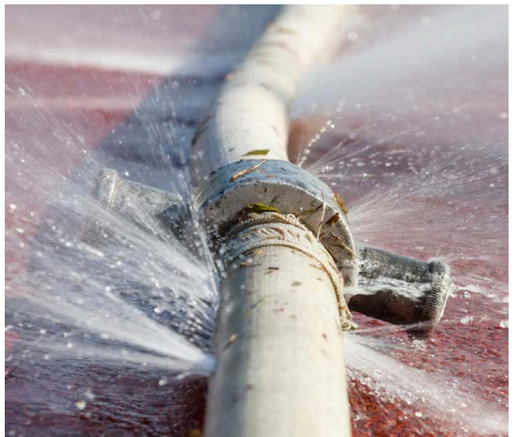
REM



Access

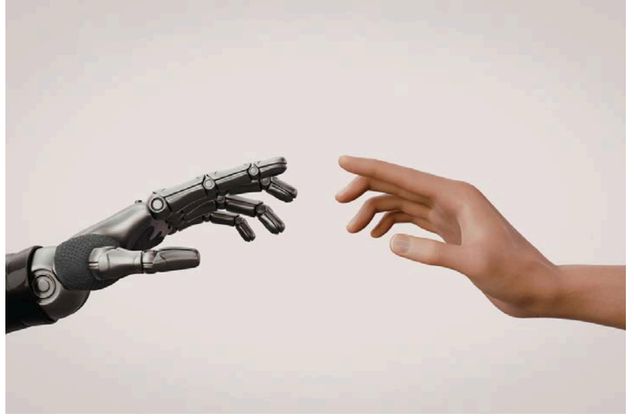
Quality



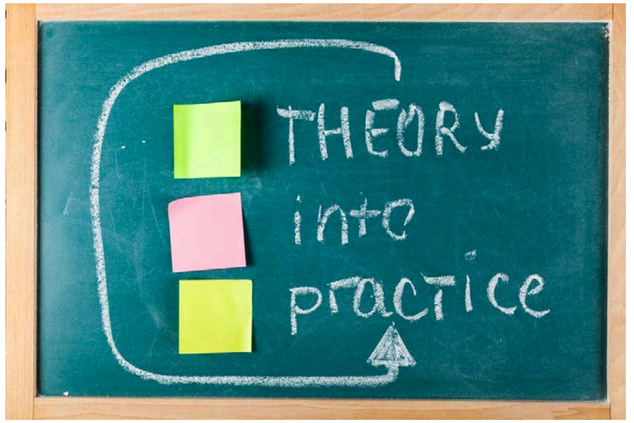
Engagement

(Cook et al., 2019; Green et al., 2020)

DMHIs



Reach

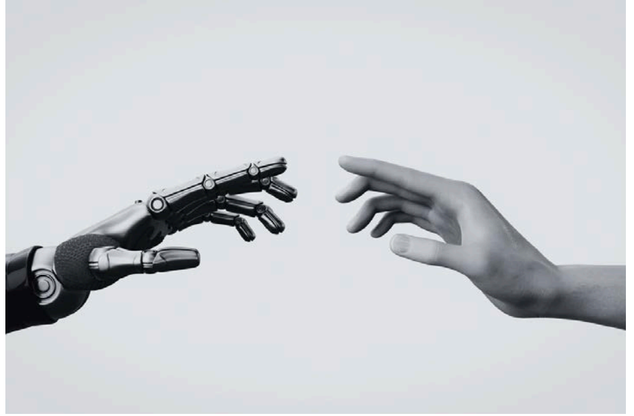


EBTs

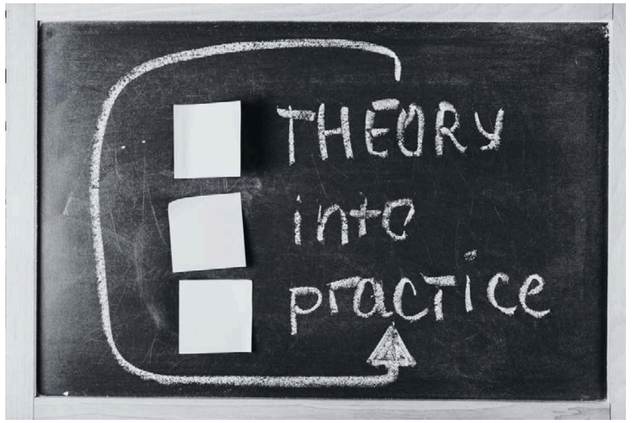
Fit

(Ramos et al., 2019, 2021, 2024, 2025)

DMHIs



Reach



EBTs

Fit

(Ramos et al., 2019, 2021, 2024, 2025)

DMHIs

State of DMHI Science

(Ramos et al., 2019, 2021, 2024, 2025)

State of DMHI Science

Mind-Us
MINDFULNESS FOR US

Equitable DMHIs

(Ramos et al., 2019, 2021, 2024, 2025)

State of the DMHI Science:

DEI and RE-AIM

(Ramos et al., 2019, 2021, 2024, 2025)

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Considerations of diversity, equity, and inclusion in mental health apps: A scoping review of evaluation frameworks

Giovanni Ramos [a], Carolyn Ponting [a], Jerome P. Labao [b], Kunmi Sobowale [c] Show more

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The Acceptability, Engagement, and Feasibility of Mental Health Apps for Marginalized and Underserved Young People: Systematic Review and Qualitative Study

Holly Alice Bear[1]; Lara Ayala Nunes[1]; Giovanni Ramos[2]; Tanya Manchanda[1]; Blossom Fernandes[1]; Sophia Chabursky[3]; Sabine Walper[3]; Edward Watkins[4]; Mina Fazel[1]

EXTENDED-ABSTRACT | FREE ACCESS

Beyond Culture: Centering Power, Reciprocity, and Justice in HCI and Mental Health Research

Authors: Sachin R Pendse, Novia Wong, Munmun De Choudhury, Jaydon Farao, Neha Kumar, Nasalifya Namwinga, Giovanni Ramos, Asra Sakeen Wani, Jessica Lee Schleider, Madhu Reddy Authors Info & Claims

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Digital Mental Health Treatments for Depression

Giovanni Ramos, PhD [a] · Eirini Karyotaki, PhD [b] · David C. Mohr, PhD [c] · Stephen M. Schueller, PhD [d]

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Increasing digital mental health reach and uptake via youth partnerships

Colleen Stiles-Shields, Giovanni Ramos, Adrian Ortega & Alexandra M. Psihogios

npj Mental Health Research 2, Article number: 9 (2023) | Cite this article

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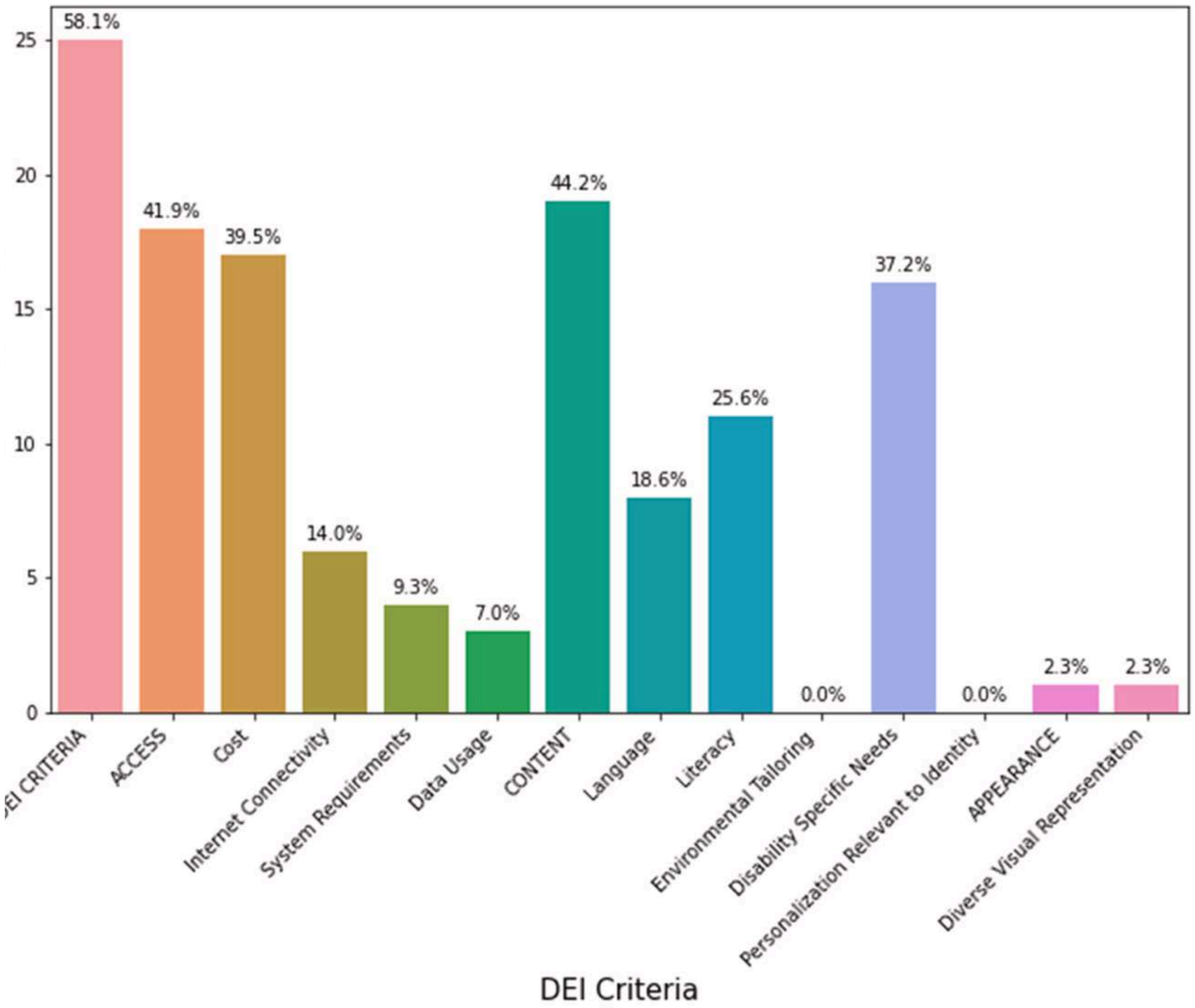
Table 1

Definitions of Extracted Diversity, Equity, and Inclusion Variables.

Domain	Variable Extracted	Definition
Access		
	Internet Connectivity	Criterion describing whether the intervention requires internet connection vs. offline/native platform. If internet is required, it describes whether broadband internet is needed or option for slow connections exists.
	Data Usage	Criterion describing steps taken to minimize data usage burden for users (e.g., offline mode, limiting video/images).
	Cost	Criterion describing steps taken to reduce the cost burden for users (e.g., free intervention, "only one payment ever" model, sliding fee scale).
	System Requirements	Criterion describing whether the intervention was designed to work on low-end devices (e.g., operating systems, processor speed, RAM, space required to install intervention)
Content		
	Language	Criterion describing whether the app is available in relevant languages other than English (e.g., Spanish in Latinx communities, Creole in Haitian communities).
	Literacy	Criterion describing procedures to guarantee the content is understandable for individuals with variable exposure to formal education
	Tailoring of Content-Environment	Criterion describing strategies to guarantee that activities included in the intervention are feasible in the community where users live (e.g., community safety, walkability, limited space, lack of privacy)
	Tailoring of Content-Disability and Special Needs	Criterion describing how the content meets the needs of people with disabilities or special needs (e.g., audio for blind individuals, color scheme for color-blind individuals, meaningful exercises for individuals with physical limitations)
	Tailoring of Content-Identity	Criterion describing whether the user can personalize the content of intervention according to their identity (e.g., pronouns, appearance of avatars)
Appearance		
	Diverse Visual Representation	Criterion describing whether the intervention features members of different identities in terms of gender expression, sexual preference, race/ethnicity, religion, among other minority identities.

DEI umbrella review: 1056 → 585 → 107 → 68 → 43



RE-AIM

Reach:

- Mostly White samples (like in most therapy research)
  - Female
  - English-speaking
  - Middle-class (US standards)
- Race/ethnicity is still not always reported
- Important demographics are ignored
  - SES
  - Tech literacy
  - Stigma
  - Other marginalized identities
- Mostly “ideal samples” under “ideal circumstances”
  - The same individuals who can likely access traditional therapy

RE-AIM

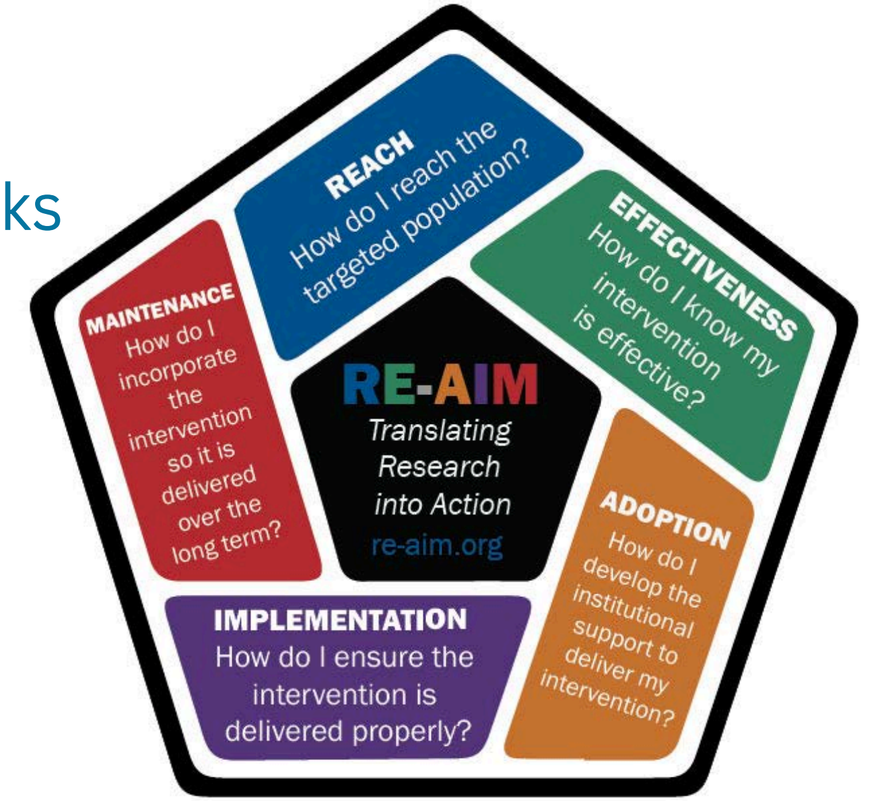
Adoption:

- Up to 50% of users never access the DMHI in RCTs
- Up to 79% of users never access the DMHI in real-world implementation efforts
- If similar to traditional therapy, REM users will experience more barriers to adopt DMHIs, given:
  - Chronic exposure to stressors
  - Significant competing demands
  - Irregular schedules
  - Low-literacy (including digital)
- Rarely measured or tested
  - % of participants screened vs enrolled
  - Success of recruitment strategies

RE-AIM

Maintenance:

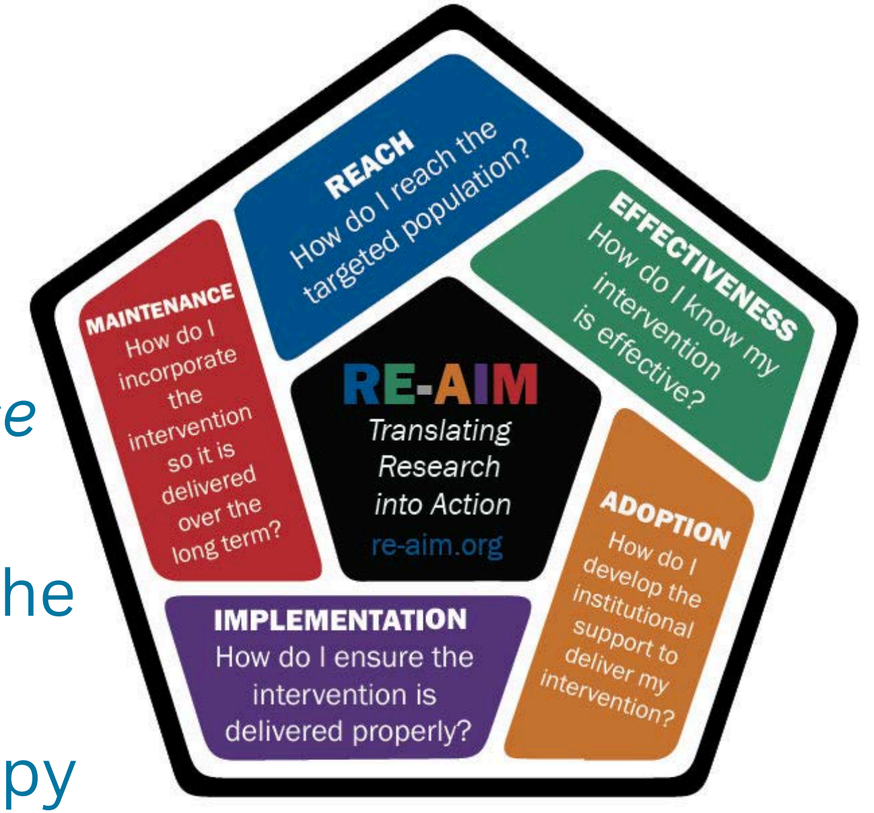
- Up to 75% users stop using DMHIs in RCTs
  - AI DMHIs are promising, with 20%
- Up to 96% of users stop using DMHIs within 2 weeks in the real world
- If similar to traditional therapy, REM users will experience more barriers to adopt DMHIs
- DMHIs may have different optimal “dosages,” depending on the EBT and condition
  - Vitamins (mindfulness)
  - Painkillers (journaling for anxiety)
  - Antibiotic (8-week CBT course)
- It is assumed “more is better”



RE-AIM

Effectiveness:

- DMHIs are effective—in some cases, just as effective as traditional therapy
- Rarely tested with REM populations
  - “DMHIs are not effective for REM”
  - “DMHIs need to be culturally adapted”
  - *Absence of evidence is not evidence of absence*
  - When DMHIs reach REM, they are effective
  - Culturally-adapted DMHIs do not outperform the original DMHIs
  - A well-documented pattern in traditional therapy
- Not sustainable to create group-specific DMHIs
  - Are potential treatment gains worth the time and resources?



MAIN TAKEAWAYS

LACK OF DEI CONSIDERATIONS IN DMHIS

When you design for the most vulnerable, you design for everyone

- Pay attention to context and needs
- CBPR and HCD can incorporate DEI into DMHIs

DMHI IMPLEMENTATION IS POOR

Reach, uptake, engagement, and retention are key barriers

- *Boring* DMHI research area: Implementation
- Targeted implementation in community settings

DMHIS ARE EFFECTIVE FOR REM

The issue is not *effectiveness* but rather *reach*

- Well-intentioned but unfounded concerns
- Is culturally adapting DMHIs really worth it?

State of DMHI Science

Equitable DMHIs

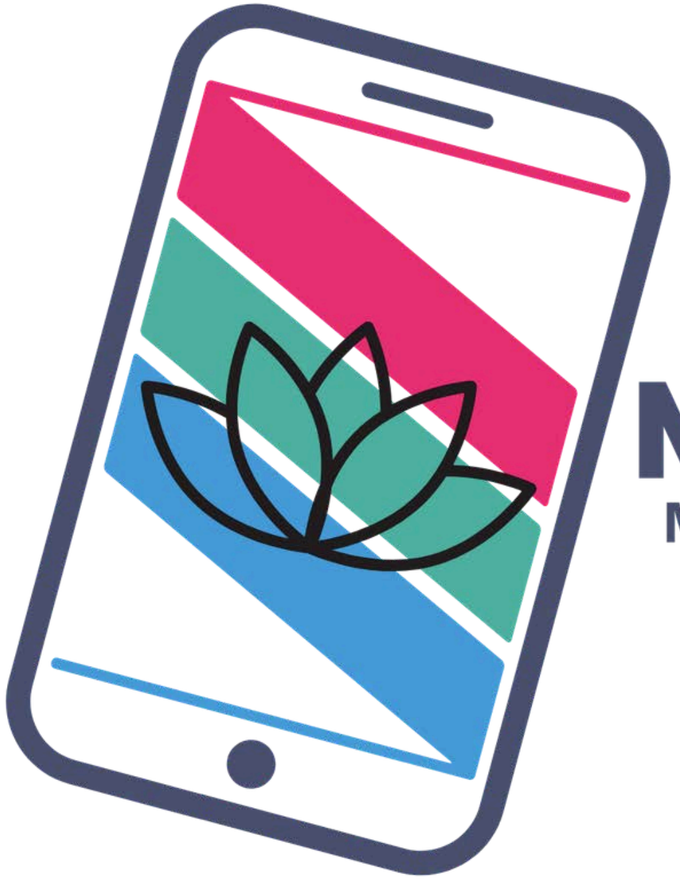
Mind-Us
MINDFULNESS FOR US

(Ramos et al., 2019, 2021, 2024, 2025)

The Mind-Us Program:

An equitable DMHI approach for REM

(Ramos et al., 2022, 2025, 3 conditionally accepted manuscripts)



Mind-Us

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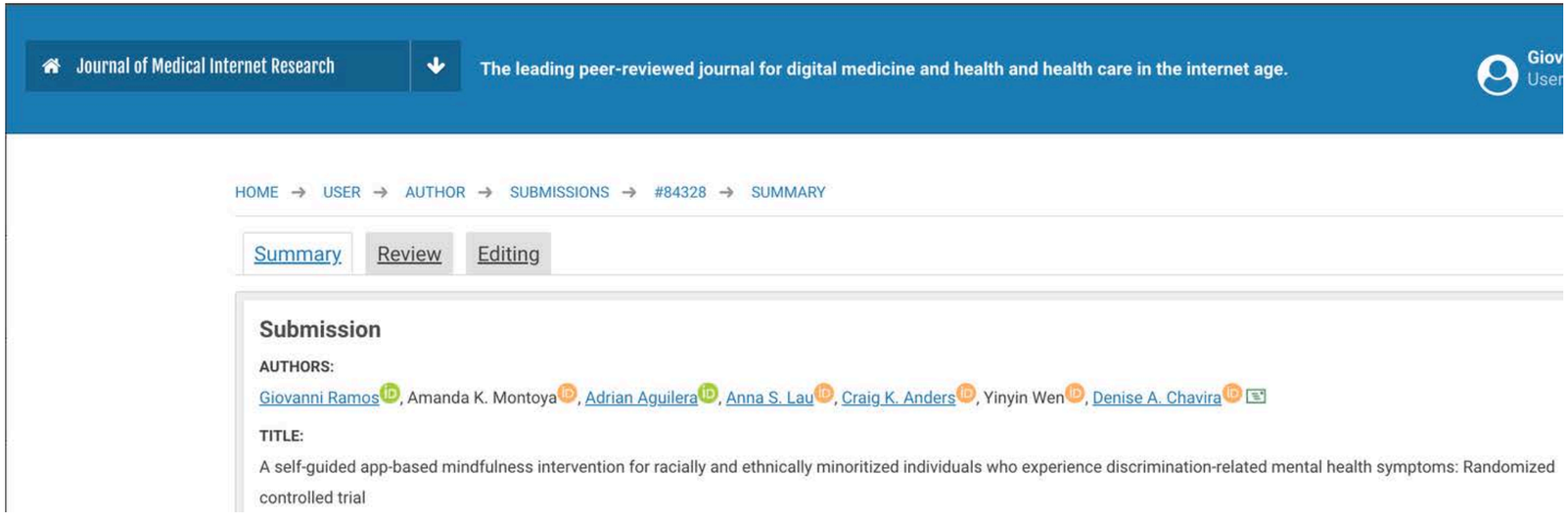
Published on 14.Apr.2022 in Vol 11, No 4 (2022): April

Preprints (earlier versions) of this paper are available at https://preprints.jmir.org/preprint/35196, first published 24.Nov.2021.

App-Based Mindfulness Meditation for People of Color Who Experience Race-Related Stress: Protocol for a Randomized Controlled Trial

Giovanni Ramos[1]; Adrian Aguilera[2,3]; Amanda Montoya[1]; Anna Lau[1]; Chu Yin Wen[1]; Victor Cruz Torres[4]; Denise Chavira[1]



Let’s go back to 2020 for a second…

ARTICLE

The Trump Effect: An Experimental Investigation of the Emboldening Effect of Racially Inflammatory Elite Communication

Benjamin Newman[1], Jennifer L. Merolla[1*], Sono Shah[1], Danielle Casarez Lemi[2], Loren Collingwood[1] and S. Karthick Ramakrishnan[1]

The Effect of President Trump’s Election on Hate Crimes

Griffin Edwards* & Stephen Rushin**

ABSTRACT

Racial Discrimination, Mental Health and Behavioral Health During the COVID-19 Pandemic: a National Survey in the United States

Lu Shi, PhD[1], Donglan Zhang, PhD[2], Emily Martin, MS[1], Zhuo Chen, PhD[3,4], Hongmei Li, PhD[5], Xuesong Han, PhD[6], Ming Wen, PhD[7], Liwei Chen, PhD[8], Yan Li, PhD[9], Jian Li, PhD[10], Baojiang Chen, PhD[11], Athena K. Ramos, PhD, MBA, MS, CPM[12,13], Keyonna M. King, DrPH, MA[12,13], Tzeyu Michaud, PhD[12,13], and Dejun Su, PhD[12,13]

Research

Vicarious Racism and Vigilance During the COVID-19 Pandemic: Mental Health Implications Among Asian and Black Americans

Police killings and their spillover effects on the mental health of black Americans: a population-based, quasi-experimental study

Jacob Bor, Atheendar S Venkataramani*, David R Williams, Alexander C Tsai*

Highly public anti-Black violence is associated with poor mental health days for Black Americans

David S. Curtis[a,1], Tessa Washburn[a], Hedwig Lee[b], Ken R. Smith[a], Jaewhan Kim[c], Connor D. Martz[d], Michael R. Kramer[e], and David H. Chae[f]

How could DMHIs help in these times?

RE-AIM

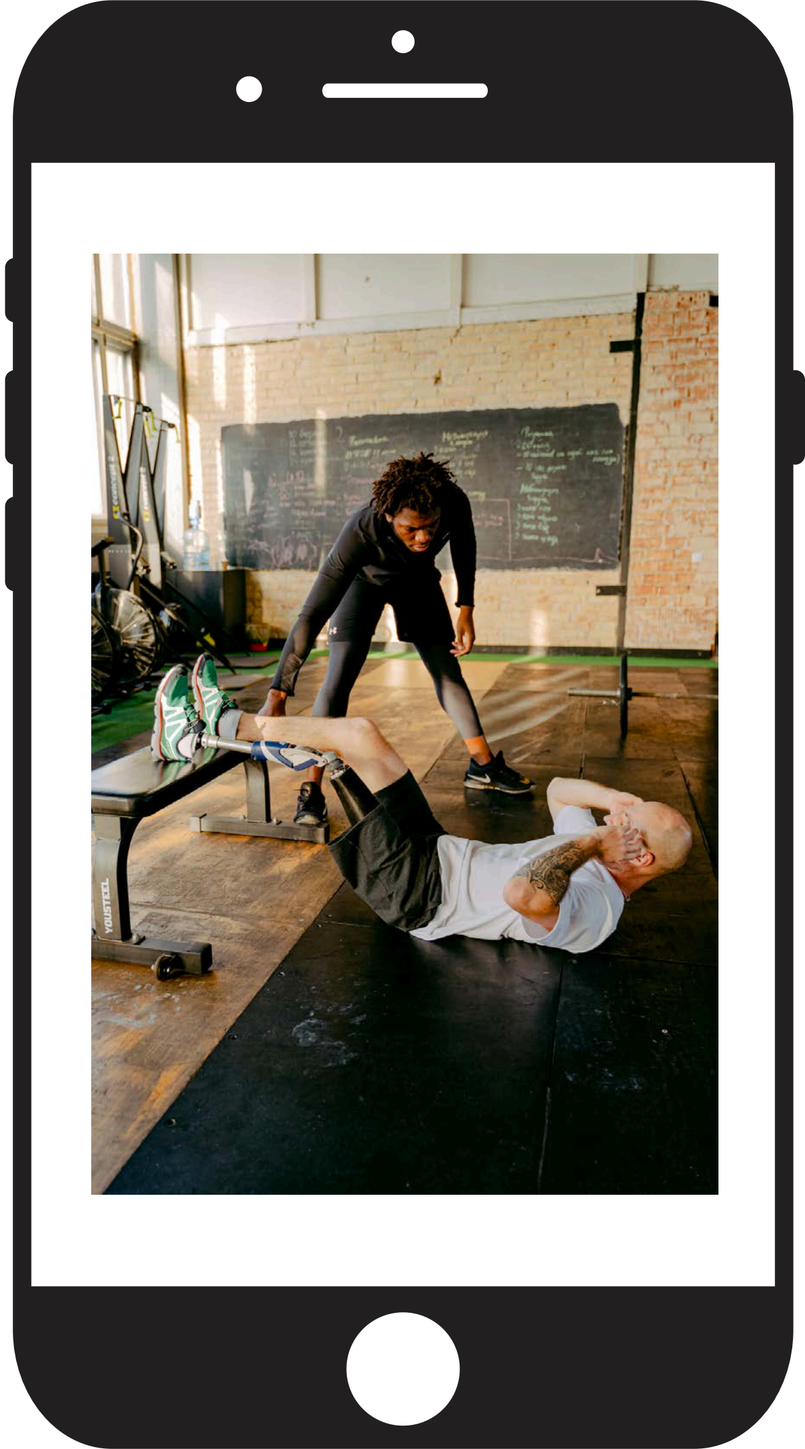
Reach:

- Offer a DMHI for REM exposed to discrimination
- Collect detailed demographics
  - Who we reach, enroll, and retain
- Diversify recruitment strategies
  - Community partners across California
  - Rural populations
  - Different social media channels
- Recruitment materials designed for REM
- Use of a smartphone-based DMHI (digital divide)

RE-AIM

Adoption & Maintenance:

- 30-minute onboarding procedure
  - Download, install, and learn to use DMHI
  - Motivational strategies and engagement plan
  - Psychoeducation about culture and EBT
- Personalized DMHI notifications
- Daily automated text messaging reminders (3 a day)
- Tracked the success of recruitment strategies
  - Social media posts vs emails vs community flyers
- Low-intensity DMHI (10 minutes a day for 4 weeks)



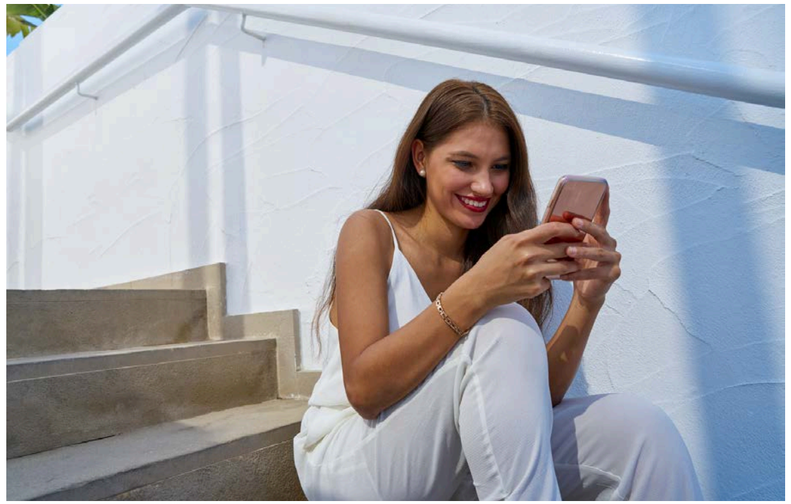
RE-AIM

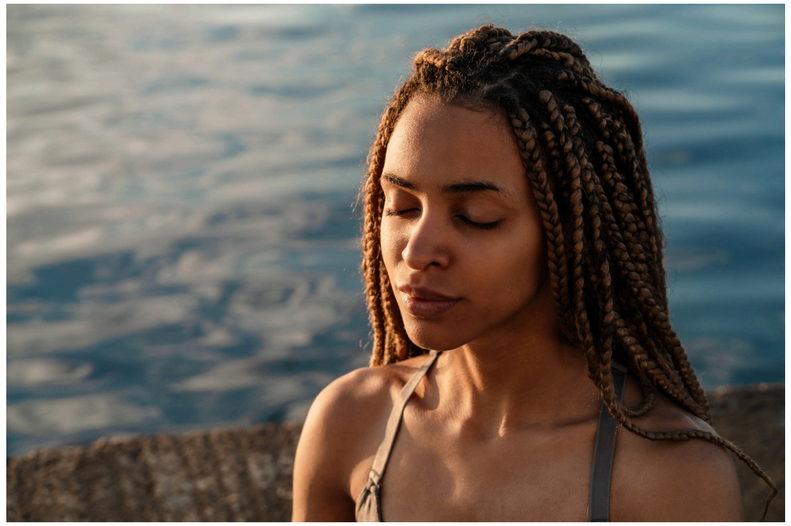
Effectiveness:

- Use of a commercially available DMHI
  - No REM-specific
  - No culturally-adapted
  - Solid EBT content
- *Absence of evidence is not evidence of absence…*
- Available DMHIs vs future DMHIs
- If thiss DMHI does not work → Data-driven adaptations

Participants in RCT (*n* = 235):

- Mage = 27.45 (SD = 9.3)
- 82.6% female
- 42% Latinx
- 34% Asian
- 15% Black
- 7% Multiracial
- 2% Native American
- 16% financial instability
- Mental health needs:
  - 90% stress (PSS ⩾ 14)
  - 41% anxiety (GAD-7 ⩾ 10)
  - 36% depression (PHQ-9 ⩾ 10)



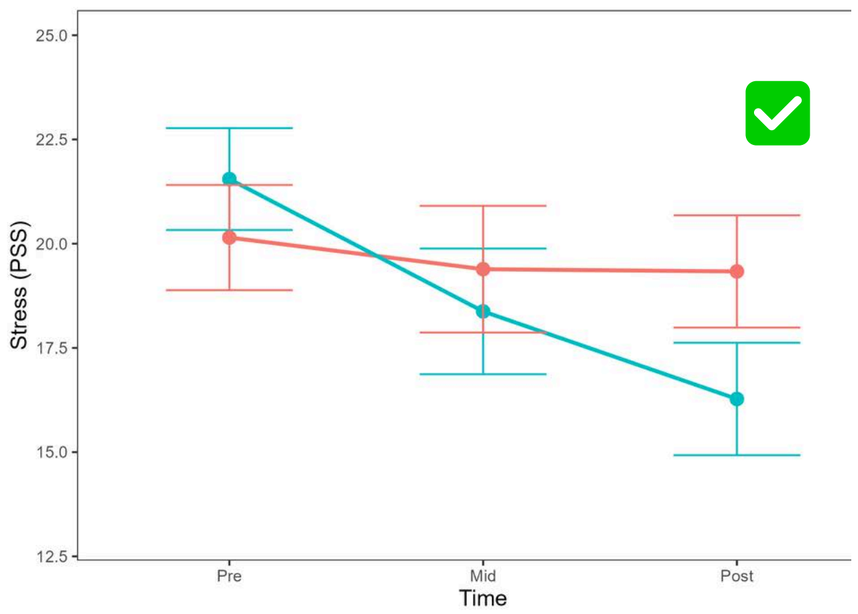


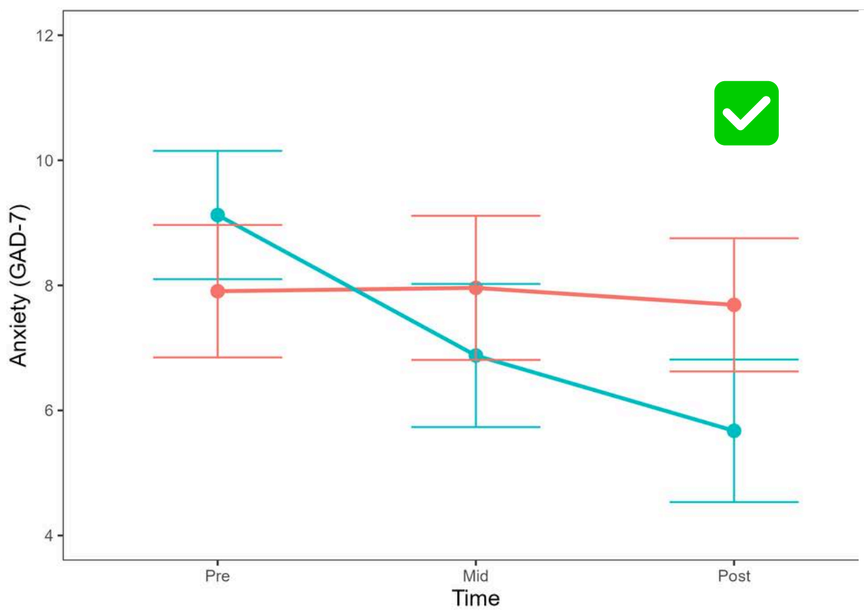
Reach:

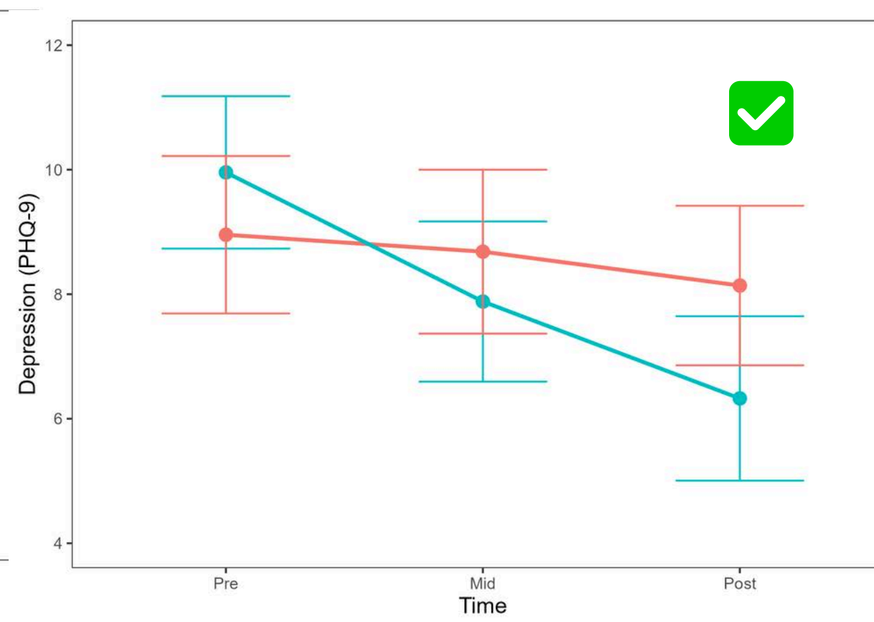
- Inequity in recruitment rate (n=3000+)
  - 27% Latinx
  - 22% Asian
  - 20% Black
  - 6% Multiracial
- Mostly recruited via emails from community partners (82%)
- 100% uptake

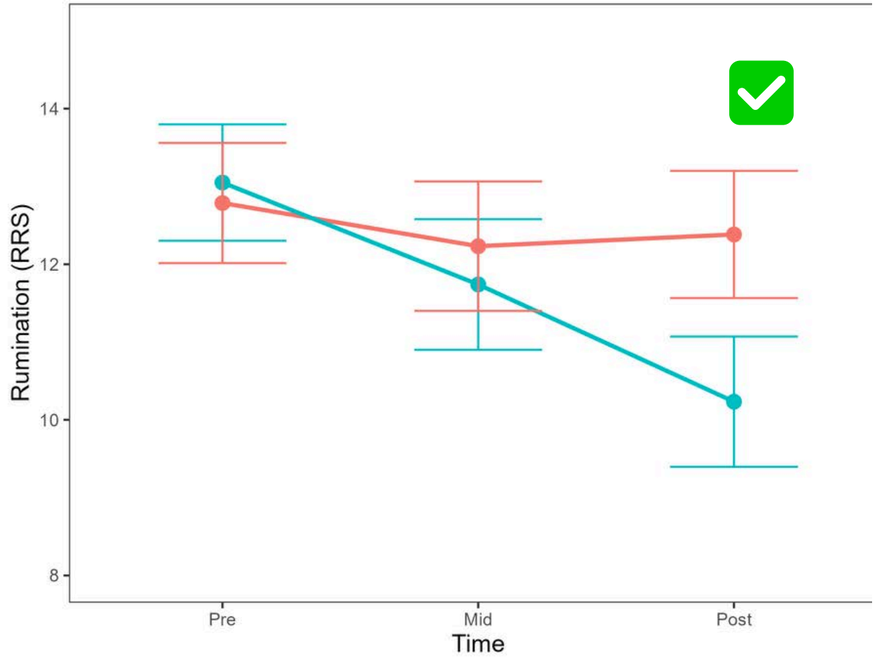
Engagement & Maintenance:

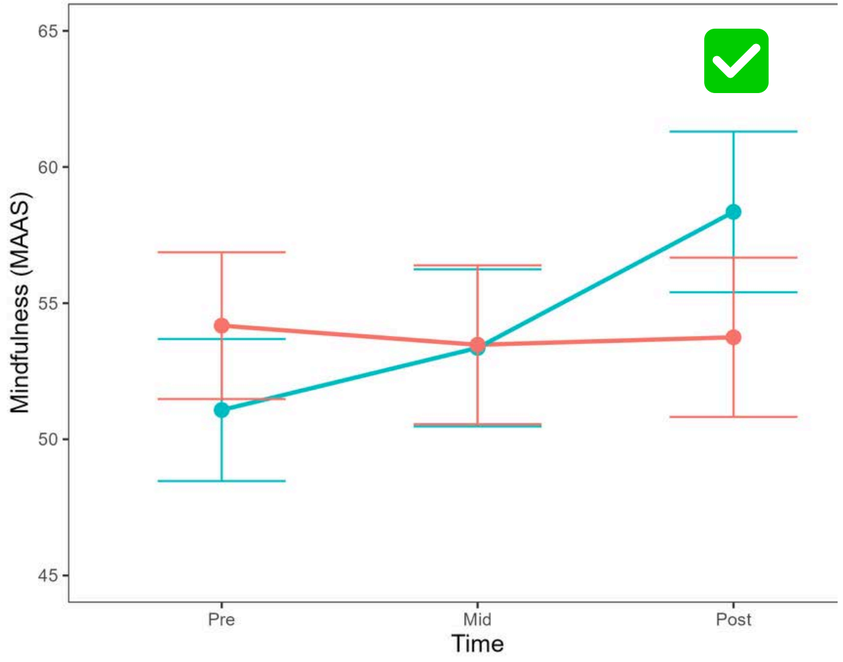
- Days using the app M = 17.21 (range = 0-28)
- Meditations completed M = 25.67 (range = 0-54)
- Total time meditated in minutes M = 250.16 (range = 0-2195)
- No differences in the first 2 weeks vs. the last 2 weeks
- Only 14% dropped out of treatment

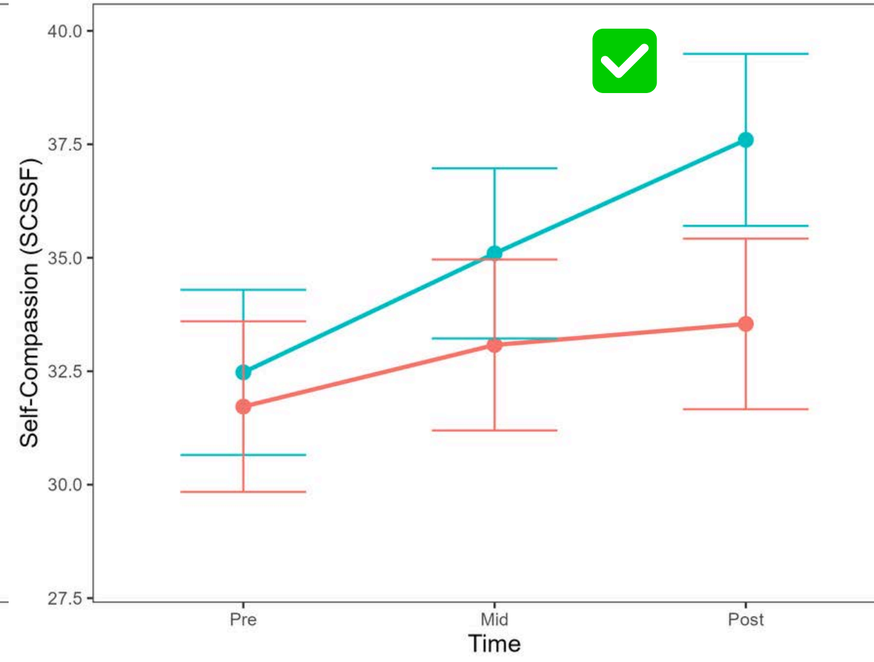

Stress (PSS)
25.0
22.5
20.0
17.5
15.0
12.5
Pre
Mid
Post
Time


Anxiety (GAD-7)
12
10
8
6
4
Pre
Mid
Post
Time


Depression (PHQ-9)
12
10
8
6
4
Pre
Mid
Post
Time


Rumination (RRS)
14
12
10
8
Pre
Mid
Post
Time


Mindfulness (MAAS)
65
60
55
50
45
Pre
Mid
Post
Time


Self-Compassion (SCSSF)
40.0
37.5
35.0
32.5
30.0
27.5
Pre
Mid
Post
Time

MAIN TAKEAWAYS

REACH & ADOPTION

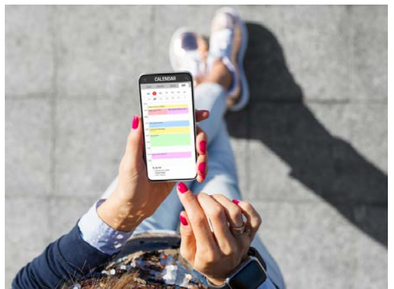
Diverse reach and outstanding uptake

- 100% REM sample (not great with Black individuals)
- Mostly through community partnerships
- 100% uptake vs 21-50% uptake in the real world

MAINTENANCE

Consistent during 4 weeks

- 14% drop out vs 75-96% in the real world
- Consistent engagement vs drop outs in first 2 weeks



EQUITABLE IMPLEMENTATION

It seems to work!

- Plan and execute with DEI principles in mind

MAIN TAKEAWAYS

EFFECTIVENESS

"Off-the-shelf" DMHI is effective for REM

- Reductions of symptoms in as short as 2 weeks

NON-CULTURALLY-ADAPTED DMHI

Commercially available app works for REMs

- Importance of testing without a priori assumptions

LOW-INTENSITY DMHI

"Good-enough" interventions

- Low time commitment, flexible, no reading/writing

EQUITY POTENTIAL

The field will never have enough providers to meet demand

- No more DMHIs but rather better implementation

State of DMHI Science

Equitable DMHIs

Mind-Us
MINDFULNESS FOR US

(Ramos et al., 2019, 2021, 2024, 2025)

THANK YOU!

gioramos@berkeley.edu