Mental Health apps?

George 'Bud' Vana MD, MA, FAAP, FAPA, FAACAP
4/19/2022
Virtual Care Implementation ECHO for Tribal Health Connections

Answer in the chat!

What app do you use most on your phone?

What's your favorite mental health app?

Mental Health apps?

George 'Bud' Vana MD, MA, FAAP, FAPA, FAACAP
4/19/2022
Virtual Care Implementation ECHO for Tribal Health Connections

Another title might be: Do mental health apps really work?
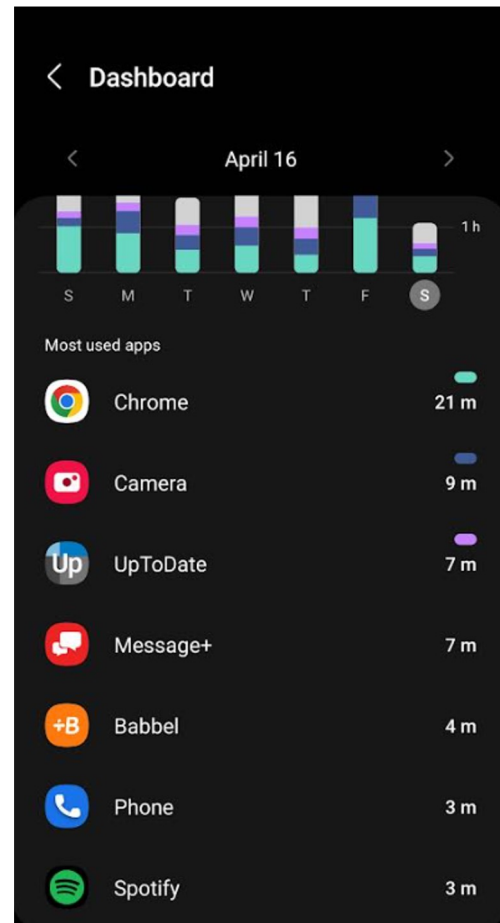
Answer in the chat!

What app do you use most on your phone?

(probably Google News - though here it looks like …)

What's your favorite mental health app?

(Covid Coach)

Here's my app usage on a Saturday!

No Disclosures

No relevant financial conflicts
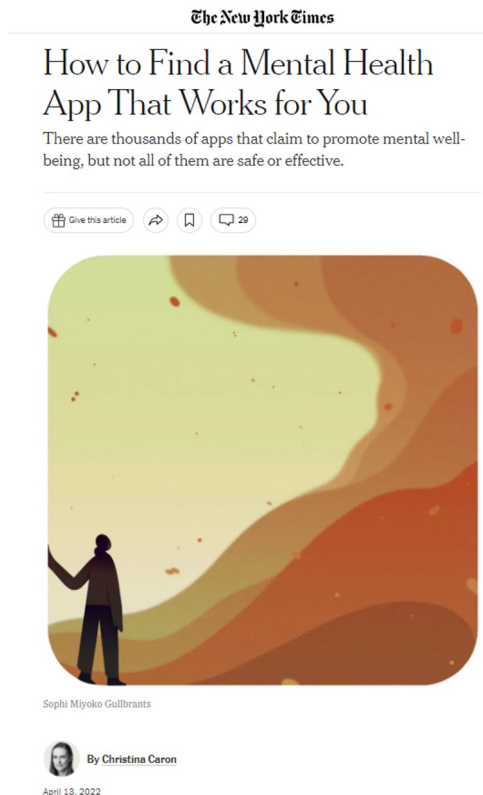
No off-label medication use

?Off-label apps? … Maybe

Disclosure about the New York Times

I was preparing this presentation…

And then the New York Times stole my thunder…

April 13, 2022

The New York Times

How to Find a Mental Health App That Works for You

There are thousands of apps that claim to promote mental well-being, but not all of them are safe or effective.

Give this article   29

Sophi Miyoko Gullbrants

By Christina Caron
April 13, 2022

https://www.nytimes.com/2022/04/13/well/mind/mental-health-apps-therapy.html

Objectives

- Describe a 'morphology', features or functionality of mental health apps
- Discuss advantages and disadvantages of apps to deliver mental health care
  - For patients
  - For clinicians
- Understand strategies to know if an app might fit your practice
- Describe opportunities and challenges for Tribal Communities to use mental health apps

Terminology

Mental Health App - application on smartphone

Platform - android, apple or other

mHealth - all technologies enabling remote care

Digital Therapeutics/Therapy – intervention designed to be delivered online over mobile or computed based devices

Shout out to ELIZA the original Mental Health App/Chatbot

Eliza, the Rogerian Therapist

ELIZA is a computer program that emulates a Rogerian psychotherapist. Just type your questions and concerns and hit return. Eliza will answer you.

Talk to Eliza

```
> Hello, I am Eliza.
* Hi Eliza
> How are you today.. What would you like to discuss?
* I'm feeling sad
> Do you believe it is normal to be feeling sad?
* No
> You are being a bit negative.
* Ok
> OK... "I'm feeling sad". Tell me more.




Input:
```

When the original ELIZA first appeared in the 60's, some people actually mistook her for human. The illusion of intelligence works best, however, if you limit your conversation to talking about yourself and your life.

This javascript version of ELIZA was originally written by Michal Wallace and significantly enhanced by George Dunlop.

© 1999 manifestation.com [PMB 417 .. 10800 Alpharetta Hwy, Suite 208 .. Roswell, GA 30076]
webmaster: sabren@manifestation.com

http://psych.fullerton.edu/mbirnbaum/psych101/eliza.htm

Morphology of Mental Health Apps

Morphology in linguistics (from Wikipedia):

In linguistics, morphology is the study of words, how they are formed, and their relationship to other words in the same language. It analyzes the structure of words and parts of words such as stems, root words, prefixes, and suffixes

Biology (from Oxford English Dictionary)
the branch of biology that deals with the form of living organisms, and with relationships between their structures.

My point: Mental Health Apps (probably all apps) can be broken down into parts or structures with different functions

Morphology: My non-exhaustive list

Apps

- that measure stuff
- that spy on you
  - Your bio-data
  - Your online data
- that are self help books
- which replace audio tapes
- which are chatbots
- that is an encyclopedia

- which communicate with providers
- which are journals
- which are exposures
- which replace paper forms
- which are sticker charts
- which are dashboards

Apps which put many of these things together

Mindapps.org's list

Search by Features

+ Track Mood	+ Track Medication	+ Track Sleep	+ Track Symptoms
+ Productivity	+ Physical Health	+ Psychoeducation	+ Journaling
+ Mindfulness	+ Deep Breathing	+ Picture Gallery/Hope Board	+ iCBT or Sleep Therapy
+ CBT	+ ACT	+ DBT	+ Peer Support
+ Coach/Therapist Connection	+ Biodata	+ Goal Setting/Habits	+ Physical Health Exercises
+ Bbot Interaction	+ Bio Feedback with Sense Data		

Mindapp.org

We'll come back to this.

Clinical review of user engagement with mental health smartphone apps: evidence, theory and improvements

John Torous,[1] Jennifer Nicholas,[2] Mark E Larsen,[2] Joseph Firth,[3] Helen Christensen[2]

[1]Department of Psychiatry, Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, Massachusetts, USA; [2]Black Dog Institute, University of New South Wales, Sydney, New South Wales, Australia; [3]NICM Health Research Institute , School of Science and Health, Western Sydney University, Sydney, New South Wales, Australia

Correspondence to Dr John Torous, Department of Psychiatry, Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA 02115, USA; jtorous@bidmc.harvard.edu

*With meta-analyses suggesting benefits of smartphone apps for conditions like depression and anxiety, **one might expect apps to be commonly used clinical tools.** In reality, the clinical uptake and utilisation of these smartphone apps remains limited, despite the tremendous clinical potential, interest and early supporting evidence. **One factor limiting mental health smartphone apps is low engagement,** and in this paper, we seek to explore both reasons for and solutions to this challenge.*

13

So why aren't apps being used more?

Theory of Low Engagement
- Poor usability
- Lack of use-centric design
- Concerns about privacy
- Lack of trust
- Do not help in emergencies

Answer for improvement
- Education
- User design testing
- Better understanding of use cases
- Easier identification and some regulaition
- Functioning better match for needs of the situation
- Challenge

Evid Based Mental Health August 2018 Vol 21 No 3

Practitioner perspective versus Corporate perspective

Does it work?

Vs

Does it make Money?

"You may be wondering why private investment is relevant to technology. We know technologies provide opportunities for mental health treatments to be scaled up. For investors, technology is attractive, as it is the key to driving larger returns." – Ravi Shah MD (Shah 2021)
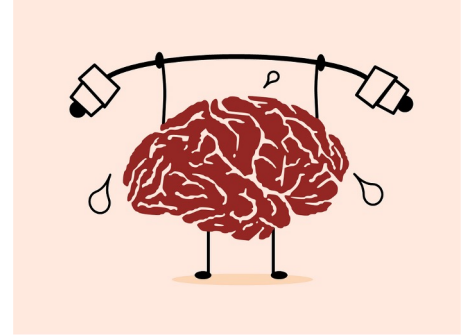
Mind App Framework

Our review approach

Each app's entry in the database is informed by 105 objective questions based on the American Psychiatric Association's App Evaluation Model, which introduces Accessibility, Privacy & Security, Clinical Foundation, Engagement Style, and Interoperability as major categories to consider.
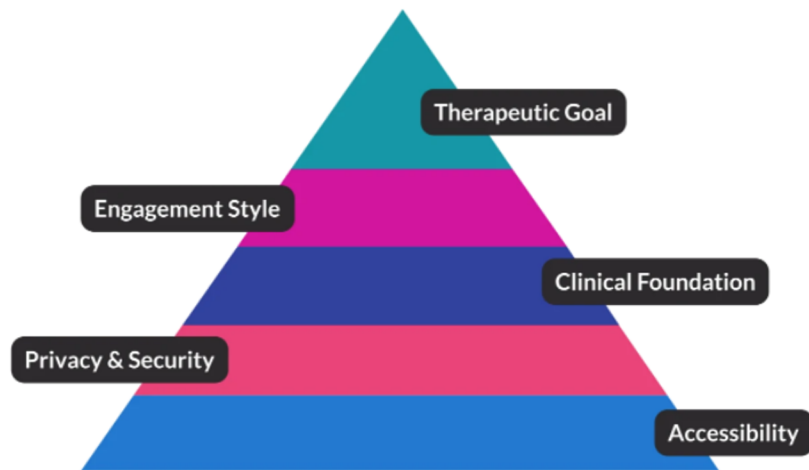
1. Accessibility: Is the app accessible for a user?

2. Privacy & Security: Does the app uphold user safety, security, and privacy by protecting data?

3. Clinical Foundation: Is the app supported by research?

4. Engagement Style: Is the app usable and customizable?

5. Data Sharing Towards Therapeutic Goal: How easily can the app share data in a clinically meaningful way?

https://mindapps.org/FrameworkQuestions

FIGURE. Characteristics of Apps for Anxiety

Commonly included elements:

53% Psychoeducation

47% Relaxation

41% Meditation

29% Mindfulness

67% Lacked involvement of any health professional during its development

4% Empirical evaluation

Brewer 2021

anueing@Stock-Adobe.com

17

Some examples of apps to illustrate advantages and disadvantages

Reset and Reset-O by Pear Therapeutics

My Virtual Hopebox

Covid Coach

PRIME

PEAR Therapeutics - only FDA approved app

Reset

Reset-O (opioids)

reSET / reSET-O Overcoming Addiction Our Treatments Proven Outcomes Videos & Voices Access & Support **Get Started**
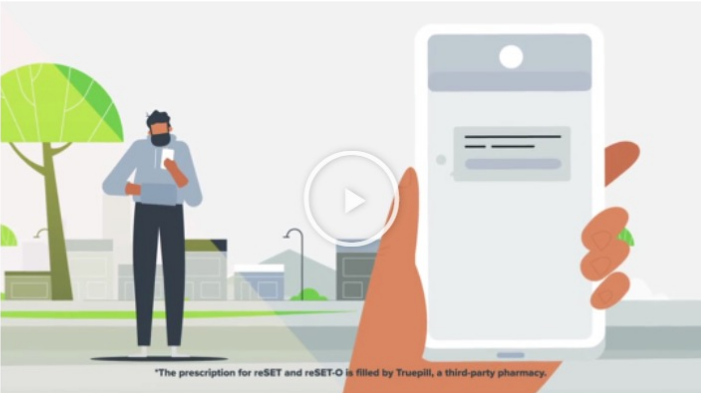
Our Treatments

JUMP TO

reSET & reSET-O Overview ↓

About reSET ↓

About reSET-O ↓

Clinician Dashboard ↓

Put the power of a 24/7 tool in patients' hands

Provide anytime, anywhere access to evidence-based approaches, like cognitive behavioral therapy, fluency training, and contingency management, with the clinically proven prescription digital therapeutic that meets their needs.[1,2]

*The prescription for reSET and reSET-O is filled by Truepill, a third-party pharmacy.

https://www.resetforrecovery.com/our-treatments/

19

Engagement in RESET and RESET-O

Positives

- Contingency management - motivational incentives

- Fluency Training (keep repeating until you get it)

- CBT-informed

- Connection to Office base opioid treatment program or Opioid Treatment Program

PEAR apps - Disadvantages

- Cost (thousands of dollars)

- Engagement – seems like it should work well with contingency management – low number of patients how tried it but not as motivating (at least the way we implemented it)

- Academic level of material

- Prescription required (prescription digital therapeutic)

Virtual Hope Box

- Pretty simple
- Several easy to access tools
- Limited options
- Connection to crisis lines

https://apps.apple.com/us/app/virtual-hope-box/id825099621

Virtual Hope Box qualitative Rating on Mindapps.org

Last Updated: **Wed Jan 12th 2022 6:57 AM**

Qualitative Review

This review represents the view of the app rater and is not an endorsement by MIND.

Developed by the Department of Defense, Virtual Hope Box is a totally free app that provides users with personalized content when needed. The app includes distracting
The app also provides an activity planning feature and "coping cards," which users can use in conjunction with treatment to set and track progress on goals. The app enab
updated in over 3 years, resulting in an outdated interface.

Qualitative Ratings

|				
Cost:	Free to Download	Totally Free		
Privacy:	Data Stored on Server	Has Crisis Management Feature	Is Anonymized/Aggregate Data Shared	Is De-Identified Data Shared
Clinical Foundation:	Well Written Relevant Content	Does What it Claims	Patient Facing	Use Warning	Supporting Studies
Features:	Productivity	Mindfulness	Deep Breathing	Picture Gallery/Hope Board	Goal Setting/Habits
Conditions Supported:	Mood Disorders	Stress & Anxiety	PTSD	
Engagements:	User Generated Data	Gamification (Points/Badges)	Audio/Music/Scripts	
Inputs:	Contact List	Camera		
Outputs:	Notifications	Reminders		
Uses:	Self Help	Hybrid		
Developer Types:	Government			
Access:	Spanish	Offline		

Covid Coach
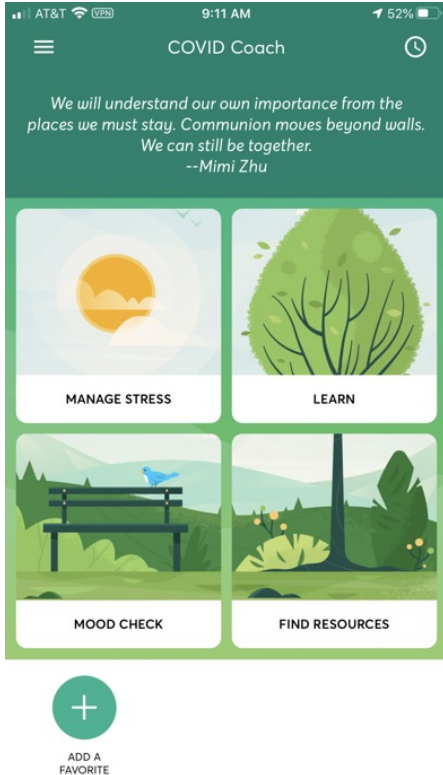
- VA Appstore
- Released early in COVID pandemic
- Composite of many other tools from VA app store
- Nice appearance
- Not very directive – patients often don't know where to begin
- Not a lot of reminders – very patient driven engagement

https://mobile.va.gov/app/covid-coach

Mindapps.org qualitative rating of Covid Coach

Last Updated: Thu Feb 17th 2022 9:58 AM

Qualitative Review

This review represents the view of the app rater and is not an endorsement by MIND.

Not available

Qualitative Ratings

Cost:	Free to Download	Totally Free					
Privacy:	Has Privacy Policy	Data Stored on Device	Can Delete Data	App Declares Data Use and Purpose	Is Anonymized/Aggregate Data Shared	Can Opt Out of Data Collection	App Reports Security Measures in Place
Clinical Foundation:	Well Written Relevant Content	Does What it Claims	Patient Facing	Use Warning	Supporting Studies		
Features:	Track Mood	Track Symptoms	Psychoeducation	Mindfulness	Deep Breathing	Goal Setting/Habits	Picture Gallery/Hope Board	iCBT or Sleep Therapy	Coach/Therapist Connection
Conditions Supported:	Mood Disorders	Stress & Anxiety	PTSD				
Engagements:	User Generated Data	Assessments/Screenings	Audio/Music/Scripts				
Inputs:	Surveys	Contact List	Camera	Microphone			
Outputs:	Notifications	References/Information	Reminders	Graphs of Data	Summary of Data	Social Network	Link to Formal Care/Coaching
Uses:	Self Help	Hybrid	Reference				
Developer Types:	Government						
Access:	Offline	Accessibility	Own Your Own Data	Email or Export Your Data	Spanish		

25

VA App Store:

- https://mobile.va.gov/appstore/mental-health

UCSF PRIME [12+]

UCSF

Designed for iPhone

★★★★★ 5.0 • 3 Ratings

Free

---

iPhone Screenshots
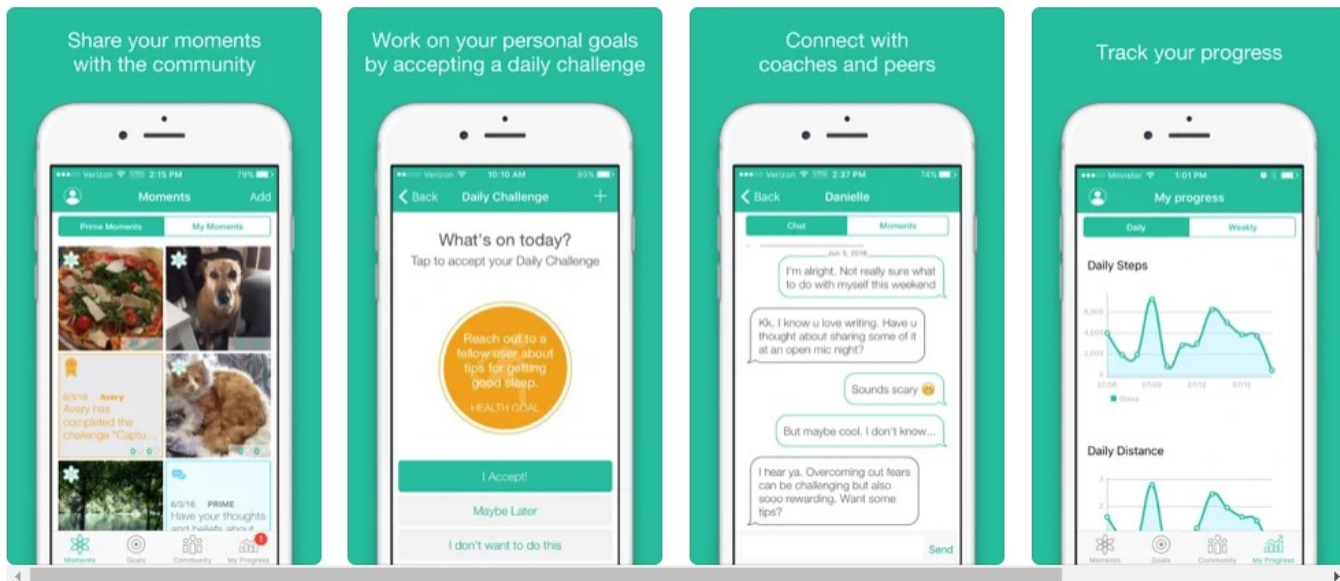
Share your moments with the community

Work on your personal goals by accepting a daily challenge

Connect with coaches and peers

Track your progress

Efficacy of PRIME, a Mobile App Intervention Designed to Improve Motivation in Young People With Schizophrenia

Danielle A. Schlosser[*,1,2], **Timothy R. Campellone**[1,3], **Brandy Truong**[1], **Kevin Etter**[1,2], **Silvia Vergani**[4], **Kiya Komaiko**[1], and **Sophia Vinogradov**[1,5]

[1]UCSF Weill Institute for Neurosciences, University of California, San Francisco, San Francisco, CA; [2]Healthcare and Science Division, Verily Life Sciences, South San Francisco, CA; [3]Mental Health Services, San Francisco Veterans Affairs Medical Center, San Francisco, CA; [4]Health and Wellness, IDEO, Palo Alto, CA; [5]Department of Psychiatry, University of Minnesota, Minneapolis, MN

*To whom correspondence should be addressed; 401 Parnassus Avenue, San Francisco, CA 94134, US; tel: 415-476-8721, fax: 415-476-7320, e-mail: danielle.schlosser@ucsf.edu

The onset of schizophrenia occurs during a period critical for development of social relationships and functional independence. As such, interventions that target the early course of illness have the potential to stave off functional decline and restore functioning to pre-illness levels. In this entirely remote study, people with recent-onset schizophrenia spectrum disorders (SSDs) participated in a 12-week randomized controlled trial to determine the efficacy of

Introduction

Schizophrenia is a serious and disabling disorder, but with targeted early interventions, individuals may experience functional outcomes equivalent to those living without the disorder.[1–4] An increasing body of evidence suggests that motivational deficits play a critical role in determining functional outcomes in schizophrenia

28

PRIME - Personalized Realtime Intervention for Motivational Enhancement

In late 2013, with a prototype of PRIME completed, Schlosser's team assembled a focus group comprised of young people with schizophrenia to give the app a try. The feedback was mixed.

"They liked the idea, but when we showed them the prototype, they really hated the design," Schlosser says with a laugh. "It was great. We totally failed."

*That failure taught her team two lessons. **First, the app needed to be engaging; it couldn't feel sterile or, more importantly, make the users feel like they were suffering from a sickness.** That is, it couldn't interact like medical literature. **Second, to design an effective app, people with the disease needed to be partners in the design process.***

https://psmag.com/news/meet-prime-the-new-app-that-wants-to-help-treat-schizophrenia

PRIME App – patient feedback

At his counselor's encouragement, he reached out to a peer who had received the diagnosis a few years prior and was further along in his recovery process. The peer messaged back:

> *Hey bud … I think this disease is definitely a huge challenge that we all sort of have to face. But I think it's a type of challenge that can be overcome. When I first got the diagnosis, I was a wreck. Depression as well as an onslaught of negative symptoms…. I think it's important to slowly get ur life back together step by step. As u progress, u will realize things really are not all that bad and that this disease is just one of the bumps in life that u will have to overcome.*

"I get so excited when I see interactions like that," Schlosser says. "It held so much more weight than his coach or psychiatrist conveying that message ever could. It means a lot to me that we're creating a safe space for people to engage on this."

https://psmag.com/news/meet-prime-the-new-app-that-wants-to-help-treat-schizophrenia

PRIME drawbacks

- Part of Controlled study
- Not available everywhere… yet.
  - Some plans to implement
- Pretty intensive service to staff
  - Coaches
  - Peers
  - 24/7?

How do you connect patients with apps who have a tough time connecting to the internet?

THE DIGITAL NAVIGATOR MODEL

"Adding Digital Equity to Our Social Safety Net"[1]

WHAT'S THE USE OF A DIGITAL NAVIGATOR?

Digital equity and inclusion cannot be achieved overnight. They require a regulated process of bringing devices, internet access, and digital literacy skills to individuals. A digital navigator is an individual at an organization who works specifically to mediate this process.

33

https://www.digitalinclusion.org/digital-navigator-model/

Digital Navigator

What are Digital Navigators?
- Digital inclusion process
- Home connectivity
- Devices
- Digital skills
- On-going coaching and repeated intraction
- Volunteers or cross trained
- Focus on Digital Equity
- Connecting to resources

https://digitalus.org/digital-navigator-playbook/

Opportunities and Challenges in Indian Country

- Opportunities
  - Rural
  - Lack of providers
  - Less traumatizing, more private than coming to office
- Challenges
  - Culturally appropriate material (maybe a challenge?)
  - Digital literacy
  - Costs
  - Stable internet access
  - Data Privacy - both individual and tribal sovereignty of data
  - Impact of social media
  - Engagement (maybe a challenge?)

My Top 5 apps vs the NY Times

1. Covid Coach (VA-Free)
2. Virtual Hope box (DOD-Free)
3. Insomnia Coach (VA-Free)
4. MyChart (EPIC-Free)***
5. eMoods (eMoods-Free)
6. SMIAdviser (Am Psychiatry Assoc-Free)

*** Good for communication and now for delivery of measurement tools - complicated for lab and test result release

NY Times 4/12/2022
Stephanie Collier (geriatric psychiatry at McLean Hostital, Belmont Mass)

1. PTSD Coach
2. Mindfulness Coach
3. CPT Coach
4. DBT Coach
5. CBT Thought Diary
6. Breathe2Relax
7. Virtual Hope Box

https://www.nytimes.com/2022/04/13/well/mind/mental-health-apps-therapy.html

Clinician side apps

- Improved Access

- Communication with patients - Good and bad

- Homework assignments

- Continued engagement (maybe?)

- Data collection

Stepped Care and apps?

Apps as step 1 or 2?

https://www.luther.edu/counseling/services/steppedcare/

38
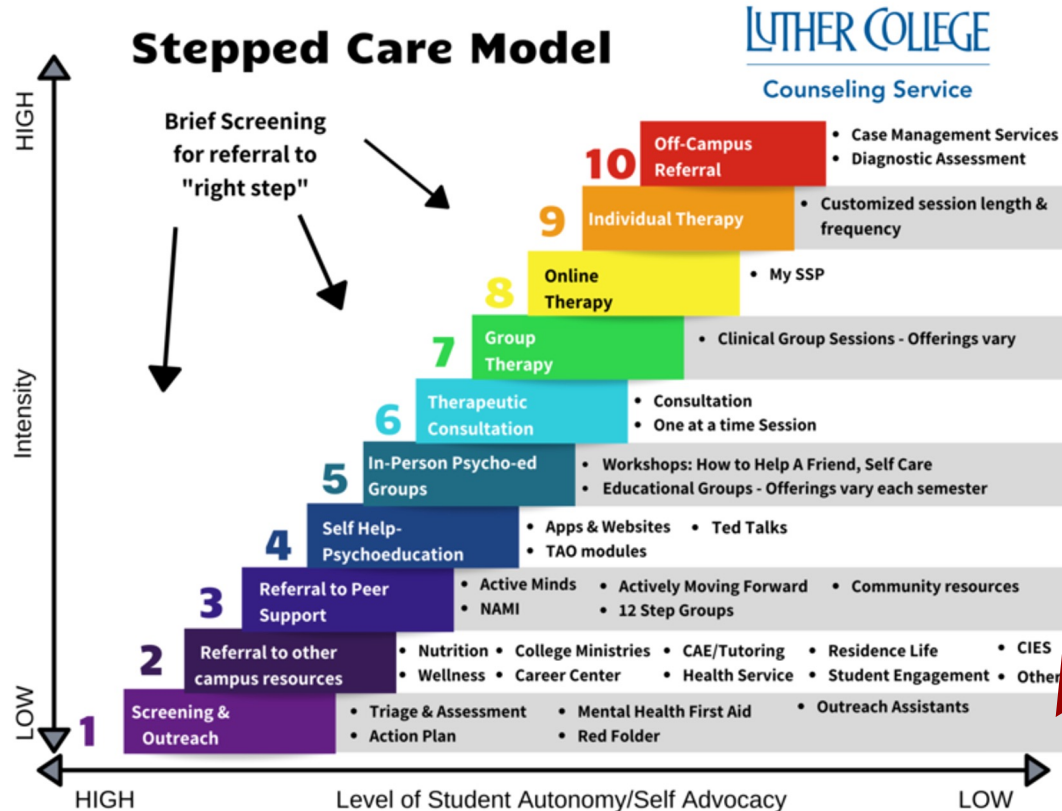
Stratified care – the right apps for the right time and place to help know what level of care a patient needs

Bed counts in psychiatric wards in the USA are now far below the numbers required for treatment of serious mental illnesses
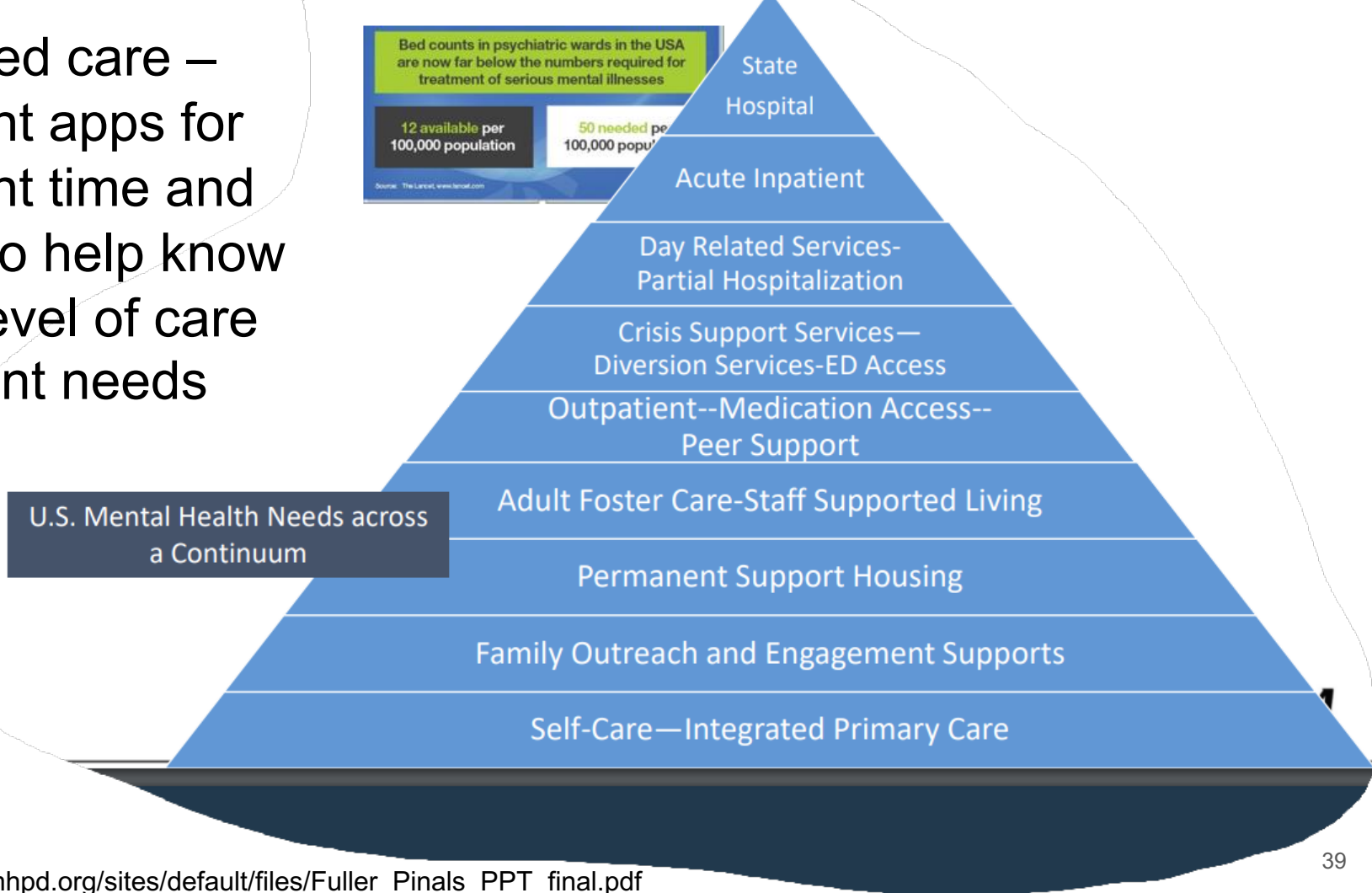
12 available per 100,000 population

50 needed per 100,000 population

Source: The Lancet, www.lancet.com

U.S. Mental Health Needs across a Continuum

State Hospital

Acute Inpatient

Day Related Services-Partial Hospitalization

Crisis Support Services—Diversion Services-ED Access

Outpatient--Medication Access--Peer Support

Adult Foster Care-Staff Supported Living

Permanent Support Housing

Family Outreach and Engagement Supports

Self-Care—Integrated Primary Care

https://www.nasmhpd.org/sites/default/files/Fuller_Pinals_PPT_final.pdf

Summary - Food for thought

- **For Everyone:**
  - Look before you leap - if you're going to recommend an app, find out a little bit more about it.
  - Check it out on Mindapps.org (or if it's not there let them know)
  - VA/DOD apps - https://mobile.va.gov/appstore/
  - Coolest apps combine many of these features and are useable for patients but have costs
- **For individual clinicians**
  - Will it improve engagement?
  - How much of your time vs the patient's time will it take?
  - What is the cost to the patient?
- **For systems**
  - How scalable is the app?
  - How much time does it take to navigate/learn the ins and outs? Do you need a digital navigator?
  - How much will it cost the system and is there the possibility of reimbursement?
  - Does the app have a role in stepped care or stratified care?

On the Horizon

- Integrated/Collaborative Care Apps for clinics
  - Behavioral Health Manager and Psychiatrist in your pocket
  - Several companies working on this presently
- No more forms?
  - Appropriate use of e-signatures – saving time on paperwork
- Video games for mental health?
  - Maybe…
- Virtual Reality for Exposure Therapy or other treatment for Schizophrenia or PTSD
  - https://www.psych.ox.ac.uk/research/oxford-cognitive-approaches-to-psychosis-o-cap/projects-1/oxford-virtual-reality-vr-for-mental-health

Resources

More info about:

- Digital Navigators
  - https://www.digitalinclusion.org/digital-navigator-model/
- Mental Health App ratings:
  - Mindapps.org
  - appadvisor@psych.org
- Engagement
  - Mental Health Fitness Challenge:
    https://www.biteback.org.au/MentalFitnessChallenge/FindOutMore
- Free Veterans Administration apps
  - https://mobile.va.gov/appstore/mental-health

Questions?

References

- Brewer, J. (2021) *Treatment at Your Fingertips: Cautious Optimism for Digital Therapeutics to Treat Anxiety.* Psychiatric Times Supplement.
- Caron, C. (2022, April 14). *How to Choose a Mental Health App*. The New York Times. https://www.nytimes.com/2022/04/13/well/mind/mental-health-apps-therapy.html
- McDonald, C. (2019, May 7). *Meet PRIME, the New App That Wants to Help Treat Schizophrenia*. Pacific Standard. https://psmag.com/news/meet-prime-the-new-app-that-wants-to-help-treat-schizophrenia
- Schlosser, D. A., Campellone, T. R., Truong, B., Etter, K., Vergani, S., Komaiko, K., & Vinogradov, S. (2018). Efficacy of PRIME, a Mobile App Intervention Designed to Improve Motivation in Young People With Schizophrenia. *Schizophrenia Bulletin*, *44*(5), 1010–1020. https://doi.org/10.1093/schbul/sby078
- Shah, R. (2021) *Technology-Enabled Care: The Futuree of Our Field.* Psychiatric Times Supplement.
- Torous, J., Nicholas, J., Larsen, M. E., Firth, J., & Christensen, H. (2018). Clinical review of user engagement with mental health smartphone apps: evidence, theory and improvements. *Evidence Based Mental Health*, *21*(3), 116–119. https://doi.org/10.1136/eb-2018-102891