

MOBILE HEALTH APPS FOR DEPRESSION: BEST PRACTICES FOR EVALUATION AND USE

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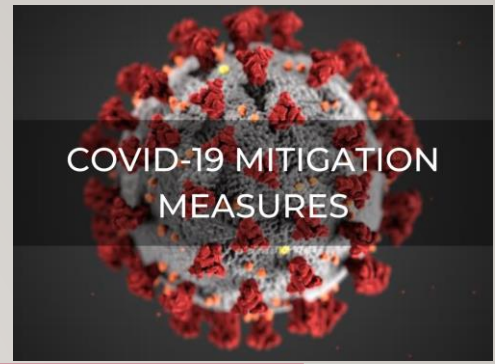
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OBJECTIVES



- Define evaluation standards for mobile health apps
- Understand mobile app use cases and implementation strategies
- Evaluate reasons why patients and providers use mobile health apps
- Identify how technology can improve access to mental health services

BACKGROUND: ACCESS IN THE TIME OF COVID



- Access to mental health care services is of paramount importance always and especially during public health emergencies
- COVID-19 pandemic has brought about radical transformative changes
 - Many sectors of the health care system saw patient visits drop by close to 60%
 - Mental health saw increased need for services and continues to rise
- Technology as a part of stepped care can increase access and overall quality

BACKGROUND ON APPS



- Self-help, education, monitoring/tracking, and augmentation to clinical care
- 300,000+ health and wellness apps commercially available; 10,000+ “designed for mental health”
 - Good efficacy when properly used and evaluated
 - Most are not evidence-based, many are focused on gaming, many are for profit
- Recent study reported that 38% of apps clinically relevant for depression included wording related to claims of effectiveness...but only 3% percent provided evidence

USING MOBILE HEALTH APPS IN CLINICAL CARE

BENEFITS

- Access / Efficiency / Reach
- Extension of Care
- Compliance
- Cost
- Data Validity
- Best Practice?

BARRIERS

- Utilization Gap
- Provider Perceptions
- Technology Limitations
- Patient Use Patterns
- Best Practices?

SYSTEMATIC ASSESSMENTS: A LOT OF APPS BUT NOT ENOUGH RESEARCH



Study	Looked at	Conclusions
Larsen et al. 2016: "A Systematic Assessment of Smartphone Tools for Suicide Prevention"	49 suicide prevention apps	<ul style="list-style-type: none">Apps tend to focus on mean of I.I suicide prevention strategies.No comprehensive/evidence-based apps, but safety plan apps seemed fit this criteria best: <i>Safety Net</i>, <i>Mood Tools—Depression Aid</i>
Sucala et al. 2017: "Anxiety: There is an app for that. A systematic review of anxiety apps"	52 anxiety & worry-relief apps	<ul style="list-style-type: none">Few apps talk about rationale, efficacy, trials.Low proportion of graphics, movies used.3.8% were rigorously tested.Reported apps w\ evidence: <i>AntiAnxiety</i>, <i>Flowy</i>.
Van Ameringen et al. 2017: "There is an app for that! ..." non-systematic review	MDD, PTSD, SAD, panic d/o, bipolar d/o, anxiety studies	<ul style="list-style-type: none">Apps can educate, be discreet, & track symptoms.Many assessments & treatments have not validated changes, e.g. iCBT or manuals get shortened texts on phonesDrop-out rates higher in self-help

ISSUES WITH USER ENGAGEMENT



- Many find apps through social media/word of mouth – use based on store ratings
- 75% stop engaging with a health app after 10 uses
- 33% stop using health apps because they are too confusing, it takes excessive time to enter data, or they lose interest
- 50%+ value ease of use over trust and effectiveness
- 60% of patients in a study of apps for depression never downloaded the app
- PTSD Coach has over 150,000 downloads; 14% used it the day after downloading

THEMES FOR LOW ENGAGEMENT

- Poor usability
- Lack of user-centric design
- Concerns about privacy
- Lack of trust
- Unhelpful in emergencies



FIVE COMPETENCIES FOR USING APPS



Evidence



Clinical
Integration



Security &
Privacy



Ethical / Legal



Cultural

Systems Issues

LEVELS OF EVIDENCE



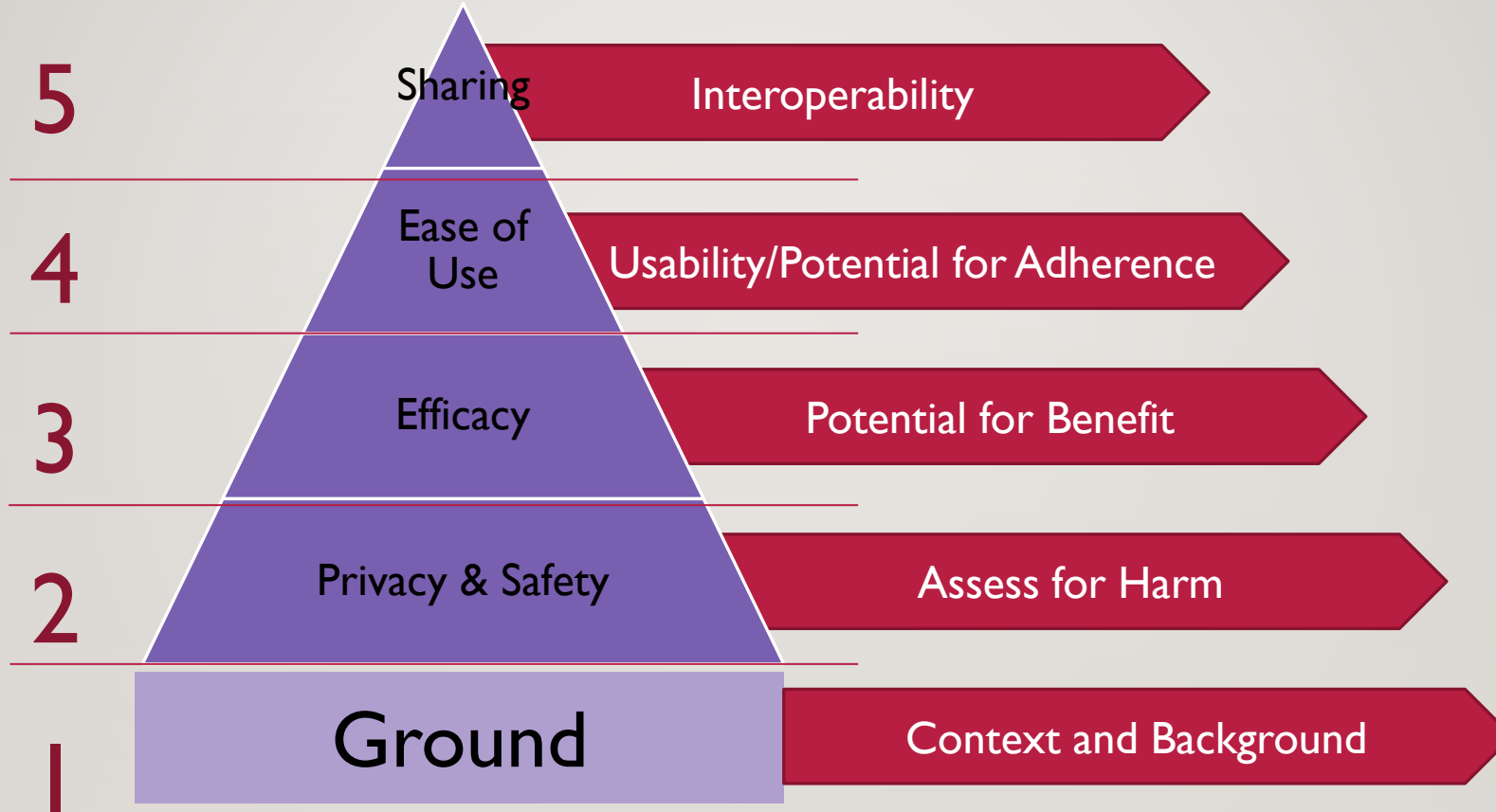
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- Clinical Efficacy
 - First apps were developed in 2008/2009 and technology is ever changing
 - Few, but growing, Randomized Controlled Trials
 - User (provider & patient) Evaluation
 - Who developed it?
 - Does it do what it says it does?
 - What are the privacy and security settings?
 - What is the need for use?

META-ANALYSES: GOOD, SMALL EFFECTS FOR DEPRESSIVE SYMPTOMS, WITH CAVEATS



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- Park et al, 2020; meta-analysis of 17 RCTs (n=3542) on the effect of app interventions on depressive symptoms
 - Most studies evaluated adults, most interventions lasted 2 to 10 weeks, Depression was primary or co-primary outcome in 15 studies
 - Most interventions were based on psychotherapeutic principles (e.g., principles of CBT, ACT)
 - Small main effect showing that app interventions reduced depressive symptoms
 - Generalization of results limited due to significant heterogeneity of studies
 - Firth et al, 2017; 18 RCTs (n=3,414) on 22 different smartphone interventions
 - All studies evaluated adults, interventions lasted 4 to 24 weeks, Depression was primary in 12 and secondary in 6 studies
 - Small-to-moderate effect size showing that smartphone interventions reduced depressive symptoms in comparison to controls
 - Better as self-management for less severe depression, low-intensity as part of stepped-care, potential to prevent more severe levels of depression
 - Smartphone-only had some advantage to hybrid w/human, likely due to app sophistication

BEFORE “PRESCRIBING” AN APP OR DEVICE, EVALUATE IT FROM 1 TO 5.



MOBILE APP RATING SCALE (MARS)



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- 23 item app evaluation tool
 - Engagement – fun, interesting, customizable, interactive, well-targeted
 - Functionality – easy to learn, navigation, flow logic, design
 - Aesthetics – visual appeal, color scheme, style consistency
 - Information – high quality information for a credible source
 - Subjective Quality – recommend, level of use

CLINICAL INTEGRATION – FOOD FOR THOUGHT



- Many who would consider using app-based care are skeptical of completely self-guided interventions
- Most commonly downloaded mental health apps focus on relaxation, meditation, and/or mindfulness skills rather than clinically-based behavioral health treatment
- Patients are more likely to engage with clinician-guided tools (e.g., CCBT research)
- Patients like the idea of more self-guided treatments - but they often want a therapeutic relationship with a human clinician

STEPS FOR INTEGRATION



- Understand – How the app fits treatment
 - Intended purpose, patient controls, features
- Workflow – How does the app fit into clinic processes
- Introduction – Take time, demonstrate the app features
 - State expectations for use
 - Assess patient app understanding and use
 - Describe the purpose and key features

SECURITY & PRIVACY



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- Know the laws and regulations such as HIPAA and HITECH Act
 - Four key questions to ask:
 - Is the app from a trusted source?
 - What permissions does it ask for or require?
 - How is data protected on a device?
 - How is data protected in transit?

ETHICAL / LEGAL



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- Know your practice guidelines e.g., APA Guidelines for the Practice of Telepsychology
 - Develop and use specific informed consent documents
 - Address and maintain provider-patient boundaries
 - Practice integration procedures
 - Stay current on clinical efficacy research and implementation guides

CULTURAL CONSIDERATIONS



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- Ethnic, racial, and socio-economic variables can impact clinical care and willingness to use technology
 - Adoption style
 - Developmental cohort
 - Access to devices



DIGITAL NATIVES

- Parallel processing & multitasking
- Prefer graphics & visuals
- Instant gratification & rewards
- Prefer to be networked
- Learn with information fast, presented in a random fashion



DIGITAL IMMIGRANTS

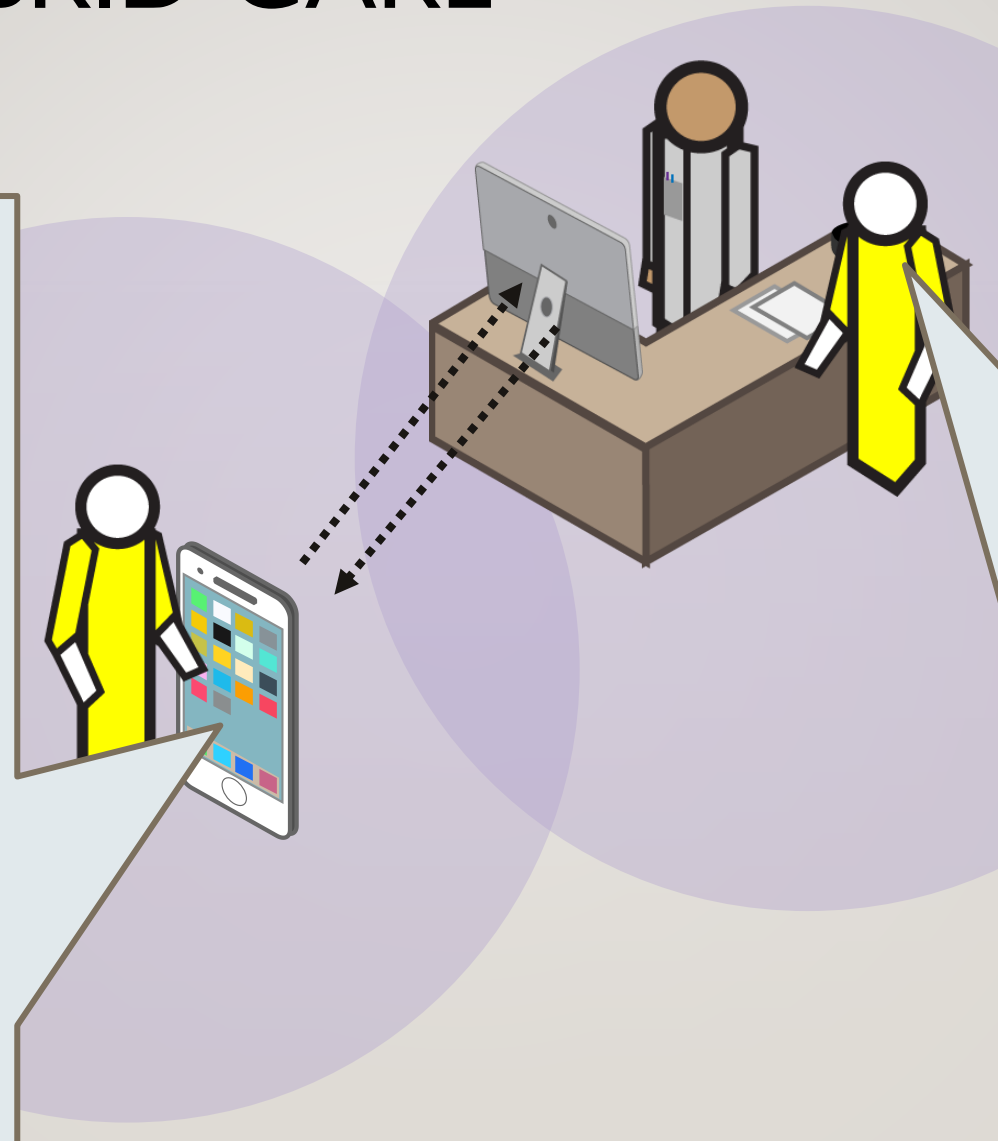
- Use Internet for information second rather than first
- Print out email
- Share computer content in-person
- Learn slowly, step-by-step, one thing at a time



POST-COVID HYBRID CARE

VIRTUAL SPACE

- Advantage for those with avoidant behavior, PTSD, and anxiety
- Convenient & immediate
- Provider can observe patient in their environment
- Indirect & off-hours care opportunities
- Modalities include videoconferencing, e-mail, text messaging & telephony



PHYSICAL SPACE

- Traditional in-person gold standard
- Immediacy & trust in interpersonal interaction
- Physical boundaries can be set for therapeutic frame
- Ample research and practice guidelines available for healthcare in the physical space

SUMMARY

- Apps provide a viable option for self-care, education, and clinical treatment of depressive symptoms
- Small effects are noted in the literature
- Evaluate apps before “prescribing”
- Integration requires ongoing management and communication
- Understand different patient and provider perspectives and virtualized service solutions to foster fluid service delivery (e.g., hybrid relationship)

CHALLENGES TO THE FIELD

- Few best practices are available – is it time for more focused effort?
- Evaluations occur *after* apps are available in a store – should there be a certification *before* apps are available?

QUESTIONS?



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DEPRESSION & ANXIETY APPS

Slide courtesy Jesse WRIGHT MD PhD, 2018.

Mobile App	Features	Source	Links/Availability
Breathe2relax	Breathing exercises	U.S.A. Department of Defense	https://www.hprc-online.org/resources/breathe2relax-app
Calm	Soothing music and photos, meditations, calming stories	Calm.com	http://www.calm.com
Day to Day	Daily tips on CBT skills such as challenging negative thoughts and behavioral activation	Intellicare Northwestern University	https://intellicare.cbitts.northwestern.edu/app/day-to-day
Headspace	Mindfulness	Headspace.com	https://www.headspace.com/headspace-meditation-app
My Mantra	Create a mantra	Intellicare Northwestern University	https://intellicare.cbitts.northwestern.edu/app/mantra

DEPRESSION & ANXIETY APPS

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Mobile App	Features	Source	Links/Availability
Positive Activity Jackpot	Behavioral Activation	U.S.A. Department of Defense	https://www.hprc-online.org/resources/positive-activity-jackpot-app
PSTD Coach	CBT methods	U.S.A. Department of Defense	https://mobile.va.gov/app/ptsd-coach
T2 Mood Tracker	Mood monitoring	U.S.A. Department of Defense	https://www.hprc-online.org/resources/t2-mood-tracker-app
Thought Challenger	Modifying negative thoughts	Intellicare Northwestern University	https://intellicare.cbins.northwestern.edu/app/thoughtchallenger
Virtual Hope Box		U.S.A. Department of Defense	https://www.research.va.gov/research_in_action/Virtual-Hope-Box-smartphone-app-to-prevent-suicide.cfm