Focus on Virtual Assessment and Treatment for Depressed and Suicidal Youth

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Western Psychiatric Hospital, University of Pittsburgh Medical Center
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Disclosures

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<tr>
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<td>National Institute of Mental Health</td>
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Agenda

1. Overview of Virtual Approaches
2. Evidence for Virtual Approaches
3. Clinical Considerations
4. Measurement-Based Care in Virtual Practice
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All Things Virtual: On Fast Forward

Are you providing any services virtually?
(i.e., using technology)

- Drastic changes in a short period of time
- Providers and patients who were not engaging in virtual assessment and treatment before are now
- Long-term impact of pandemic on youth services unclear

The Problem

< 20% of depressed and suicidal youth receive treatment

- Long gap between first symptoms and receiving treatment

Martin et al 2020; Fonagy et al 2017; Flaum 2013
What Do Youth Want in Virtual Mental Healthcare?

- Credibility ("it looks legitimate")
- Real-person support
- Appealing esthetics
- Streamlined
- Self-monitoring

Results in:
- engagement
- adherence
- satisfaction
- symptom improvement

Which Virtual Mental Health Options Are Youth Using?

16% of ~3,000 high school students used at least 1
- Low use rate
- Low awareness of options
- Increased use with increased awareness

The Problem

- $ billions invested in studying evidence-based treatment
- Treatment works
- Yet MOST are not in standard clinical practice
- Demand > Supply
The Problem

Reach is as important as effectiveness...

Why Aren't Youth Receiving Treatment?

Barriers:
- Stigma
- Geography
- Access
- Transportation
- Finances
- Low perceived need

The Solution: Virtual Mental Healthcare for Depressed and Suicidal Youth?

Youth are early adopters and regular users

Of 12-17 year-olds in the US:
- 95% have access to a computer
- 89% have their own smartphone
- 75% have internet access

Most youth look online first for information on mental health:
- symptoms
- conditions
- treatment

Technology is the dominant way teens communicate

![Graph showing communication methods](chart.png)

- "More Than Half of Teens Text With Friends Daily"
- "In-person" communication varies:
  - Every day: 20%
  - Every few days: 40%
  - Less often: 10%

- "Text messaging" is widely used:
  - 65%

- Other methods include:
  - Video chatting: 37%
  - Video gaming: 24%
  - Instant messaging: 21%
  - Email: 13%

Source: Pew Research Center's Teenagers, Social Media & Tech survey, Sept 25-Oct 9, 2014, and Feb 26-Mar 28, 2015 (n=1,000 teens ages 13 to 17)
Virtual Healthcare Definitions

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
<th>Examples / Modality</th>
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<tbody>
<tr>
<td>Digital health intervention (DHI)</td>
<td>Interventions that provide information, support &amp; therapy for health problems via a technological platform</td>
<td>Website, App, Text/SMS, Videoconference, Wearable device, Email</td>
</tr>
<tr>
<td>Electronic health (eHealth)</td>
<td>Any internet-based healthcare delivery</td>
<td>Website</td>
</tr>
<tr>
<td>Online interventions</td>
<td>A computerized treatment program delivered by Internet. Can have varying levels of user support</td>
<td>Psychoeducation, Psychotherapy, 'Serious' games, Brain training interventions</td>
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<tr>
<td>Mobile delivered health (mHealth)</td>
<td>Healthcare information, monitoring and/or treatment delivered through portable electronic/mobile devices</td>
<td>Smartphone, Tablet, Text/SMS, App, Wearable device</td>
</tr>
<tr>
<td>Telehealth</td>
<td>Healthcare service delivered via telecommunication technology. Communications may be synchronous or asynchronous</td>
<td>Videoconference (online therapy), Text/SMS, Email</td>
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Adapted from Hollis et al 2017

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Feasible & Acceptable
- high provider & patient satisfaction
- greater sense of security and control
- prefer comfort of their personal space

Increased access to care
- convenient
- miss less school for appointments
- lower cost

Ecological validity
- home
- school

Roth et al 2019
Comer & Myers 2016
Martin et al 2020
Grist et al 2019
Mitchell et al 2017
Perry et al 2015
Studies on Telemental Health with Youth are Increasing

- Yields valid and reliable diagnoses
- Feasible for a range of childhood disorders (autism, PTSD, ADHD, psychosis, eating disorders, depression...)
- As effective as the same care delivered in person (with lower cost and higher satisfaction)
- Virtual CBT (clinician-delivered) has biggest effect size

Telehealth for Youth: What Do We Know?

- Yields valid and reliable diagnoses
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Online Interventions for Youth Depression

Features of online treatment that matter:
- Tailoring
- Personalization
- Rewards
- Reminders
- Expertise
- Authority/System credibility

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Based on limited research

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Online Interventions for Youth Depression

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Based on limited research
Online Interventions for Youth Depression: What Do We know?

Meta-analyses of online treatments for youth depression and anxiety
- 34 controlled studies (20 anxiety; 10 depression; 4 both)
- <50% had any clinician contact
- ~60% program completion rate overall

Findings:
- Small overall treatment effect (g=0.45; > waitlist and attention control)
- CBT > Cognitive Bias Modification, Attention Bias Modification & Other
- Equally effective for clinical depression and anxiety
- Less effective for subclinical symptoms
- Mixed findings on age differences
- Enhanced outcomes with parental involvement
- Enhanced outcomes with therapist support
  - More effective (g=0.66 vs face to face g=0.72)
  - Better adherence

Online CBT programs for youth depression and anxiety:
- CATCH-IT (Ip et al 2016)
- SPARX (Merry et al 2012)
- Stressbusters (Wildt et al 2017)
- The Journey (Stasiak et al 2014)
- BRAVE-ONLINE (Connaughton et al 2017)
- Bip-OCD (Earlake et al 2017)
- Cool Teens (Stasiak et al 2014)
- Think Feel Do (Stallard et al 2011)
- MoodGym (Twomey & O'Reilly 2016)

Other online programs:
- BiteBack (Positive psychology; Manicavasagam et al 2014)
- PratenOnline (Solution-Focused Brief Treatment; Keenan et al 2014)

School-Based Virtual Assessment & Intervention

- Universal mental health screening in schools recommended
- Online technology to identify at risk youth (Goodman et al 2018)

- School-based telehealth on the rise in the US
  - ~1 million students in >1800 public schools (mostly rural)
  - MEMO study (Whittaker et al 2012)
    - 15 high schools in New Zealand
    - mHealth CBT intervention for prevention of depression
      - Controlled trial showed no benefit
  - Online gatekeeper trainings for school professionals (e.g Ghoncheh et al 2014)
    - Enhance knowledge and confidence with suicidal youth
Virtual Intervention for Suicidal Youth: What Do We Know?

- Very little! Concerns re: risk
  Suicidal youth often excluded from trials

- E-DASH (Sayal et al. 2019)
  Phone or video problem solving / CBT
  Small controlled trial (age 6-30) who recently self-harmed
  Low retention in treatment and follow-up
  Stopped trial early

- EMPATHY open trial in schools (Silverstone et al. 2015)
  Guided-internet based CBT
  7th & 8th graders
  Pre-post improvement in depression and suicidal ideation

Virtual Intervention for Suicidal Youth: What Do We Know?

- me-IT (Robinson et al. 2014, 2017)
  CBT delivered via "host character" online (overseen by school staff)
  High school students
  Acceptable in pilot study
  Larger controlled study couldn’t recruit
  High dropout rate

- Additional small studies of e-interventions for suicidal youth showed NO effects (e.g. ibobby self-help online)

Proceed with Caution

Limitations of current studies
- small samples
- not yet replicated
- cost effectiveness unknown
- most apps have never been tested

Still a lot we don’t know!
- general acceptability (post-COVID)
- Many available online…little to guide choice
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Telehealth Challenges

- Internet connectivity
- Privacy / data protections
- High attrition
- Access to phone / computer for adolescents
- How to integrate into healthcare system?
- Payer issues / reimbursement
- Awareness of resources

“Webside Manners”

- Open body posture
- Managing pauses and turn-taking
- Nodding!
- Distance from camera approximates personal space
- Hand gestures (small; thumbs up, waving) replace physical and verbal gestures (i.e., less “yes, uh-huh”)
- Consider your physical space (privacy, professionalism, light)
- Eye contact is critical
- Monitor your own image (picture in picture)
Telehealth Considerations: Privacy and Security

- Password protect your device
- Limit use of devices to professional activities
- Safe storage of devices when not in use
- Disposal of “records”
- HIPAA-compliant platform

Is telehealth appropriate for this youth?

**Practical considerations:**
- Jurisdiction across state lines
- Insurance reimbursement / coverage
  - Billing / copays
- Documentation / Record Keeping
  - (e.g., informed consent, release of information)

**Clinical considerations:**
- Patient’s privacy / confidentiality
- Distractions
- Severity
- Evidence for telehealth for the youth’s condition
- Technology competence / comfort
Telehealth Risk Management

Risk management guidelines:
- Discuss at informed consent
- Obtain contact # and physical location at start of each contact
- Review and confirm safety plan
- Create emergency plan if disconnected / safety concerns
  - Protocol for contacting collaterals (secondary, tertiary contacts) emergency services
- Incorporate parents/guardians as appropriate
- Timeframe for asynchronous communications

How to manage suicidal youth virtually?
Consider the BRITE app!

Safety Planning

Safety plan is standard of care for at-risk youth
- A structured sequential plan for coping with suicidal thoughts / urges
- Tailor made for the youth; collaboratively created
- An agreement to defer acting on suicidal thoughts / urges for a specified period in order to try other potential solutions
Why a Safety Planning App?

- Safety plan is readily available in real time
- Could be used across levels of care
- App serves as guide for clinician in building an effective safety plan

Safety Planning / Suicide Prevention Apps

>15 apps (and counting!)
Varying levels of evidence-informed content

- Most not studied—limited evidence of effectiveness
- Generally acceptable
- App usage an issue

Mental Health App Usage Over 30 Days

% of users who opened the app

Days from app installation

 Baumel et al 2019
 Larsen et al 2016
 Grist et al 2017
 Arshad et al 2019
What Do Suicidal Teens Want In An App?

- Security and discretion
- Personalization
- Suggestions for useful interventions
- Multiple methods for coping
- Daily reminders to use the app so that when a crisis comes, they are used to using it

Brite is the only app for suicidal teens that is personalized, multi-faceted, has a safety plan, and has been tested in a controlled trial to examine suicide attempts

Kennard et al 2015, 2018

BRITE Features

Personalized Safety Plan
Routes adolescent to possible interventions (all customizable):
- Savor
- Distract
- Self-Soothe
- Reasons for living
- Reaching out to contacts

Highlights:
- Badges as rewards
- Substantial user-generated content
- Clinician Dashboard

The BRITE App
Creation of Safety Plan in BRITE

Slide courtesy of Candice Biernesser PhD

Reasons for Living in BRITE

Slide courtesy of Candice Biernesser PhD

As Safe as Possible (ASAP):
An intervention for Hospitalized Suicidal Adolescents

- Period post-discharge from hospital is the highest risk for repeat attempts and death by suicide
- Gap between discharge and first outpatient session
- Suicidal events occur early in outpatient care (before youth can learn skills in treatment)

A brief intervention on the inpatient unit PRIOR to discharge + BRITE app to bridge transition to outpatient

Kennard et al 2015
Kennard et al 2018
The Interventions: Treatment as Usual (TAU) and ASAP

<table>
<thead>
<tr>
<th>Module</th>
<th>Title</th>
<th>Core Content</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Adherence &amp; Safety</td>
<td>• Adherence (MI) • Psychoeducation • Safety planning informed by chain analysis</td>
</tr>
<tr>
<td>2</td>
<td>Affected Protection: Reasons for Living</td>
<td>• Reasons for living • Mood monitoring • Pleasant activities • Populate BRITE app</td>
</tr>
<tr>
<td>3</td>
<td>Affected Protection: Savoring</td>
<td>• Savoring &amp; switching • Distress tolerance</td>
</tr>
<tr>
<td>4</td>
<td>Consolidation (pre-/post discharge)</td>
<td>• Review skills • Problematic BRITE app use • Bridging calls • Case management • Liaison with aftercare</td>
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Inpatient Hospitalization

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<tr>
<th>Core Content</th>
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<tbody>
<tr>
<td>• Inpatient programming</td>
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<tr>
<td>• Standard safety plan</td>
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<tr>
<td>• Standard aftercare</td>
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Motivational Interviewing (MI) Framework

Suicide Outcomes: 6 months* since intervention

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<tr>
<th></th>
<th>TAU</th>
<th>ASAP</th>
<th>P</th>
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<tbody>
<tr>
<td>Any suicidality</td>
<td>79.3%</td>
<td>67.7%</td>
<td>0.49</td>
</tr>
<tr>
<td>Suicidal ideation</td>
<td>75.9%</td>
<td>67.7%</td>
<td>0.49</td>
</tr>
<tr>
<td>Suicide related behavior</td>
<td>10.3%</td>
<td>12.9%</td>
<td>&gt;.99</td>
</tr>
<tr>
<td>Suicide attempt**</td>
<td>28.6%</td>
<td>10.3%</td>
<td>0.08</td>
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*Data Aggregated from Week 4, 12, and 24 Interviews
**This excludes the 3 participants who were still in the hospital at the time of attempt

Adolescents Receiving ASAP vs TAU Had Longer Time to Suicide Attempt

Weeks since Baseline

Survival

0.00 0.25 0.50 0.75 1.00

TAU ASAP

Usual Care Treatment

Kennard et al 2018

1-Survival

Usual Care Treatment
Does BRITE App Use Matter?

More frequent app use (mood rating)

Greater increase in Reasons for Living & Greater reduction in suicidal ideation

Future Directions for ASAP and BRITE

• Currently conducting a large clinical trial
  2 sites, N=240

• We aim to identify which aspects of the intervention (ASAP, Brite, or the combination) is most associated with prevention of future suicide attempts

Exciting Additions to BRITE

• Guide2Brite
  an onboarding adaptation of the app for primary care physicians and community clinicians

• BriteBoard
  clinician dashboard to guide measurement-based care
Interested in Using BRITE with At-Risk Youth?

- Website: etudes.pitt.edu to learn more
- Email: etudes@upmc.edu
- Call: Brandie George (412) 246-5629

20% of youth referred access mental healthcare in 6 mos (Chisolm et al 2009)

How to help youth and families follow up with treatment recommendations?

Text Messaging Intervention to Enhance Treatment Engagement: Text to Connect (T2C)

-20% of youth referred access mental healthcare in 6 mos (Chisolm et al 2009)

How to help youth and families follow up with treatment recommendations?

T2C: Automated text messaging system for parent and youth
- targets motivational barriers
- prompts awareness of treatment targets in daily life
- delivers tailored information
- provides appointment reminders

Text Messaging Intervention to Enhance Treatment Engagement: Text to Connect (T2C)

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What is Measurement-Based Care (MBC)?

Systematic administration of symptom rating scales + Use of the results over time = To inform clinical decision-making

Expert recommendations for management of suicidal youth via telehealth include MBC at each visit

- Harding et al 2011
- Fortney et al 2017
- McGinn et al 2019

Why Use Measurement-Based Care? Effectiveness

Research supports effectiveness of MBC in behavioral healthcare:

- Enhanced treatment outcomes
  Medication and therapy have faster and more robust effects
  Across patient age, disorder type, and provider type

- Meta-analysis of over 50 controlled studies
  \( g = 0.5 \) for patients adhering to treatment
  \( g = 0.3 \) for all patients
  ***Largest effect size for studies including: Outpatient, patient self-rated symptoms, & feedback to provider over time in a structured manner

Why Use Measurement-Based Care? Acceptability & Feasibility

For PATIENTS, MBC:
- Promotes illness knowledge and symptom self-management
- Improves adherence to tx plan
- Empowers patients to be more involved w/ clinical decision-making
- Provides evidence that provider is taking their concerns seriously
- Enhances collaboration and coordination across providers
- Enables evaluation of programming

For PROVIDERS, MBC:
- Enhances communication with patients
- Promotes focus on symptoms identified by patient as most severe
- Complements clinical judgment, (clinical judgment alone detects deterioration for ~20% of patients)
- Prompts providers to change course of tx when patients are not improving

- Harding et al 2011
- Fortney et al 2017
- Kennedy Forum Brief, 2015
What Does MBC Look Like at STAR?

- Patient/parent complete self-report forms via web at home or linked by text or email in waiting room or tablet prior to apt.
- Provider and patient graphically track progress together.
- Results inform clinical decision making.

Sample Report

Measurement-Based Care: How To

- Paper and pencil
- Text messaging
- Phone apps
- Commercial systems
- Embedded in electronic medical record

Choosing scales:
What Is Needed for MBC to be Effective?

Measurement
- Reliable and valid
- Sensitive to change
- Diagnostic / symptom-specificity

Implementation
- Frequent measurement and feedback to provider; screening alone insufficient to improve outcomes
- Timely measurement and feedback to provider (concurrent with clinical encounter)
- Clinically actionable feedback

Conclusions

Virtual assessment and treatment:
- Valid & reliable assessment
- High provider and patient satisfaction
- Feasible
- As effective as same care delivered in person
- However, research remains limited:
  Need to know for whom & under which conditions

Future Directions

- Development / testing of hybrid models
- Gaming
- Virtual reality
- Wearables / real-time monitoring
- Passive sensing
Resources

- American Psychological Association
- American Psychiatric Association
- American Telemedicine Association
- National Association of Social Workers and Association of Social Work Boards
- National Board for Certified Counselors

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