Usability & Utility of a Virtual Hope Box (VHB) for Reducing Suicidal Ideation

Peter M. Gutierrez, Ph.D.
PI: Nigel Bush, PhD

The views expressed are those of the authors and do not necessarily represent the official policy or position of Department of Veterans Affairs, Department of Defense or the United States Government. This research was supported, in part, by a grant awarded to the Denver VA Medical Center by the DoD (W81XWH-10-2-0178).
High risk individuals need support and coping skills away from the clinic

Cognitive Therapy (CT) & Dialectical Behavior Therapy (DBT): effective in managing suicidal patients

- Aimed at redirecting the distressed individual’s attention towards **reasons for living**
- Combined with **stress-reduction** techniques - relaxation and distraction

**Hope Box, Hope Kit, Self-Soothing Box:** Common component of CT and DBT

- Physical representation of the patient’s **reasons for living** that the patient creates and customizes
- Stores items that a patient can refer to during feelings of hopelessness: E.g. favorite CD, family photographs, reminders of accomplishments and future aspirations, supportive messages from loved ones.
Conventional Hope Box: physically unwieldy and inconvenient—often not available when patient needs it most during crises.

A “Virtual Hope Box” (VHB) takes common hope box practice and uses smartphone vehicle and features to enhance access and experience.

• Personal cellphone use extremely high among active and recently retired military personnel

• Service members highly mobile. Suicidal crises most likely to emerge in absence of healthcare providers.

• Smartphone apps can expand the reach of traditional therapeutic interventions beyond the clinic and benefit from rich multimedia.

• Smartphone-based app allows for easily personalized VHB that is highly portable and always available to a user in distress wherever they are.
Development and Test of Virtual Hope Box

MSRC Award: W81XWH-10-2-0178. 09/22/2011 – 02/31/2014

Study Objective
Conduct a proof of concept development and evaluation of a virtual hope-box (VHB) smartphone app to supplement in-person clinical therapy for service members and veterans with suicide ideation or behavior.

1. Can a smartphone app be developed that contains the essential elements of a hope box and associated elements of CT/DBT in a package acceptable to and usable by military service members and veterans?

2. Is the prototype VHB app as usable, acceptable, convenient, and ostensibly useful as a conventional hope box (referred to from hereon as physical hope box or PHB) to a clinical sample of service veterans at high risk of self-harm and suicide and their providers?
Design & Methodology: Phase 1 - VHB Development

VHB Design Specs & Functional Requirements → “Agile” Development of Prototype → Iterative Usability Testing in T2 TEC Lab

Review and Input from Portland VA DBT Clinic Study Staff → Final Modifications → Move to Phase 2

Developers and T2 Content Specialists → Modifications → External Review

20 active duty soldiers
T2 Virtual Hope Box Prototype

VHB designed as tool for use by MH providers with patients as accessory to tx

Patient and MH Provider work together in the clinic to populate VHB on patient’s own smartphone with appropriate personalized content

Patient uses VHB away from clinic and continues to add/change content as needed, with guidance from provider
T2 Virtual Hope Box Prototype

Focuses the user on cherished memories, reminders in digital media: Photos, videos, recorded messages, music.

Distraction pieces for the user: Activity Planner, and puzzles/word search games taken from user content.

Relaxation pieces, such as a deep breathing tool, progressive muscle relaxation, etc.

User customized support contacts, hotline info.

Preloaded inspirational quotes can be supplemented or replaced by personal quotes, family aphorisms, biblical phrases, etc.

Coping Cards highlight adaptive thoughts and behaviors when in crisis or managing problematic core beliefs.
Example: Remind Me

Select from collection of media in multiple formats. Set Remind Me to shuffle display.
Example: Relax Me

Selectable timing and duration for inhale, hold, and exhale
Example: Distract Me

Puzzle photos and words extracted from existing user content

Selectable levels of difficulty
Design & Methodology: Phase 2 - Clinical Testing

Cross-Over Design - PHB/VHB or VHB/PHB

1. Screening & Enrollment
   - DBT Patients

2. Baseline Assessments
   - Phone Interviews every 2 weeks

3. Construction of 1st Hope Box (PHB or VHB)

4. 1st Field Testing:
   - PHB or VHB
   - 6-8 Weeks:
   - Phone Interviews
   - every 2 weeks

5. Evaluation of 1st Field Test & Final Assessments

6. Construction of 2nd Hope Box (PHB or VHB)

7. 2nd Field Testing:
   - VHB or PHB
   - 6-8 Weeks:
   - Phone Interviews
   - every 2 weeks

8. Evaluation of 2nd Field Test

9. Clinician Focus Group

• VAMC DBT program for BPD or PTSD
• High risk of self-harm
• Own iPhone or Android
• Hope box utilization as part of treatment
• OEF/OIF veterans (preferred)
Compared to the Self-Soothing Box or Physical Hope Box,

More patients
a) used the VHB regularly;
b) found the VHB beneficial and helpful;
c) found the VHB easy to set up;
d) said they were likely to use the VHB in the future and;
e) would recommend the VHB to peers.

f) Twice as many patients preferred the VHB for future use than the PHB.
g) Some recommended using both VHB and PHB as a complementary combination.

VHB/PHB Patient Feedback  N=18

- Prefer VHB alone for future use
- Prefer PHB alone for future use
- Prefer Combination of VHB & PHB for future use
**Positive Patient Feedback for VHB**
Participants confirmed that they used the VHB application when they felt distressed or emotionally overwhelmed, and spoke to the importance of the application being something private they could access, whether at home, or in a crowded area

“Controlled breathing helps me to relax. Pictures remind me that I have a reason to stay on the earth.”

“Quotes keep me thinking about who I am and gave me positive messages. Coping cards reminded me that it is ok to not be perfect.”

Helped with distraction when overwhelmed.

“Really like, nice to have something at the fingertips all the time.”

“Been a positive experience. Allows to change the channel with brain is stuck. It’s private.”

**Clinician Feedback**
“I find the VHB to be a great tool for completing, working, collaborating with a client, actively, in session. When I find that the focus of a session turns to themes of “I can’t do anything”; “Nothing will work”; “I won’t do that”, this tool enables collaboration to happen...”
Ongoing

• Feedback from patients and providers re improvements to prototype. Various modifications underway:
  • Addition of guided imagery relaxation tools
  • Interface changes and reorganization
  • Functional improvements
  • Enhancement of distraction tools, quotations
  • Redesign of coping cards
  • Inclusion of daily reminders and texting tools
  • Development of clinician and patient user guides

• Revised production VHB to be released as free app to Android and IOS marketplaces approx end of January 2014. Soft release aimed at providers.

• One or more peer reviewed articles on proof-of-concept results

• New RCT: RC100 VA patients at elevated risk for suicidal self-harm behaviors:
  • VHB vs. TAU for 12 weeks with measures at baseline, 3 weeks, 6 weeks and 12 weeks.
  • Effectiveness of VHB smartphone app to a) reduce severity of suicidal ideation; b) increase ability to cope with stressors and; c) increase perceived reasons for living, both pre-post and compared to TAU
Questions

Nigel Bush, Ph.D.
nigel.e.bush.civ@mail.mil