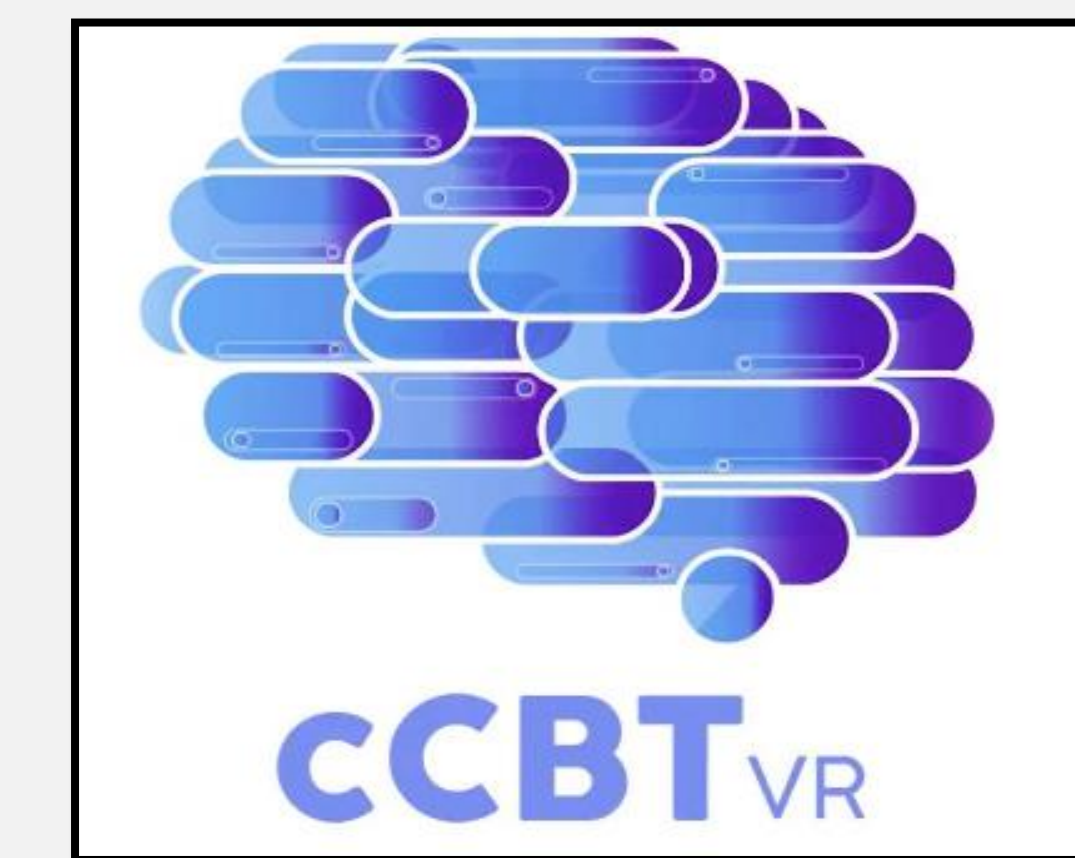




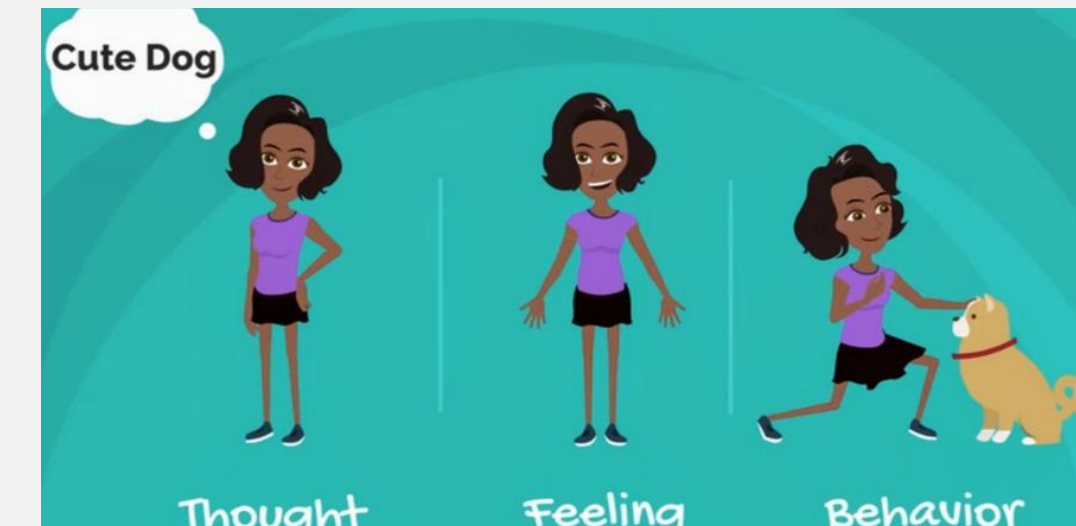
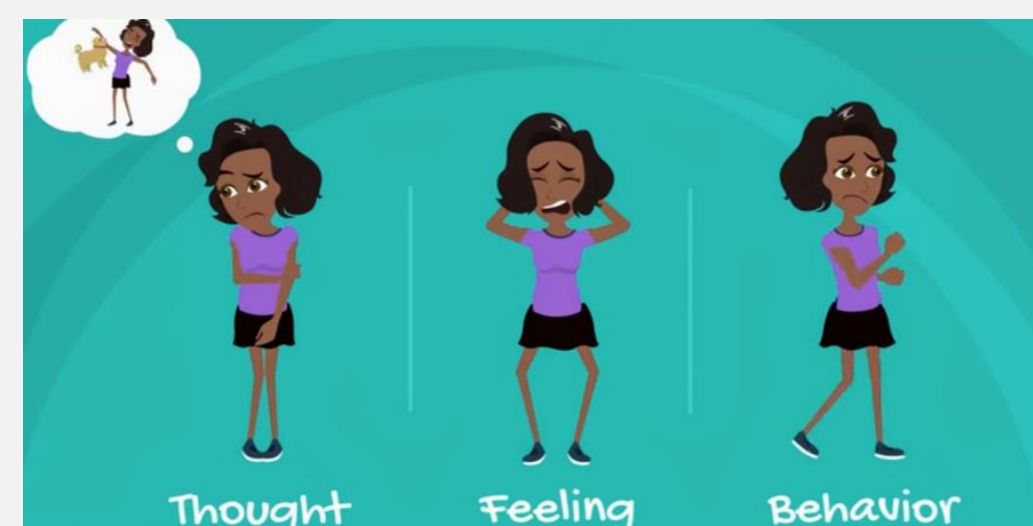
Computerized Cognitive Behavioral Therapy Mobile App (cCBTvr): Designing a Usability and Feasibility Study



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Background

- Behavioral health disorders are among the most costly health conditions in the US, and one of the leading causes of disability¹
- More than 50% of Americans with a behavioral health disorder do not have access to treatment,¹ due to decreased mobility, transportation concerns, stigma, and living in underserved areas
- Mobile apps bridge the gap and provide treatment to those with less access
- Existing apps can feel unreliable and difficult to use
- Attention to usability and feasibility, as well as incorporating Virtual Reality (VR), may increase overall engagement and effective treatment of mild to moderate symptoms of anxiety.



cCBTvr Mobile App

- CBT-based treatment modules address symptoms of anxiety via Android/iOS
- “Dr. Lauren” guides the user through sessions from her virtual office
- 8 CBT-based modules:** (1) psychoeducation on the cognitive triangle; (2) antecedents, response, and consequences of behaviors (ARC); (3) automatic thoughts; (4) thinking traps; (5) challenging thoughts; (6) challenging behaviors; (7) coping through grounding; and (8) wrap-up review
- Guided imagery meditation** sessions and interactive activities at any time
- In-app Patient Reported Outcome Measures (PROMIS)** assess anxiety symptoms and provide real-time feedback of results
- Results will be available to providers, to track progress
- Safety message included in the app that directs users to a crisis hotline in the event of an emergency
- Data collected from surveys and focus groups will inform further development of the app



References

¹American Psychiatric Association, (2017). Mental health disparities: Diverse populations. Retrieved from <https://www.psychiatry.org/psychiatrists/cultural-competency/education/mental-health-facts>

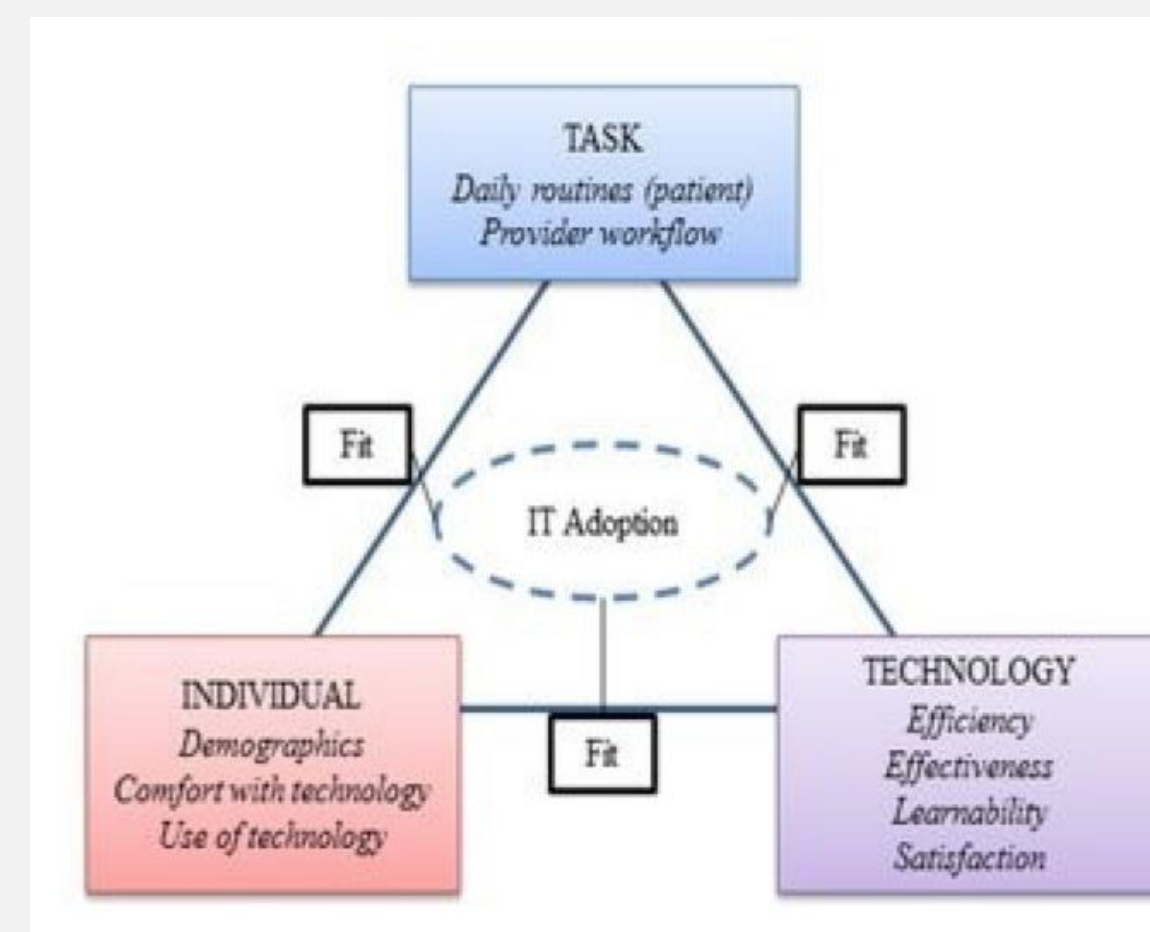
The Current Study

Overall Goal: Design a mixed-methods research study to assess the usability and feasibility of the cCBTvr app from the perspective of patients and providers within our health system.

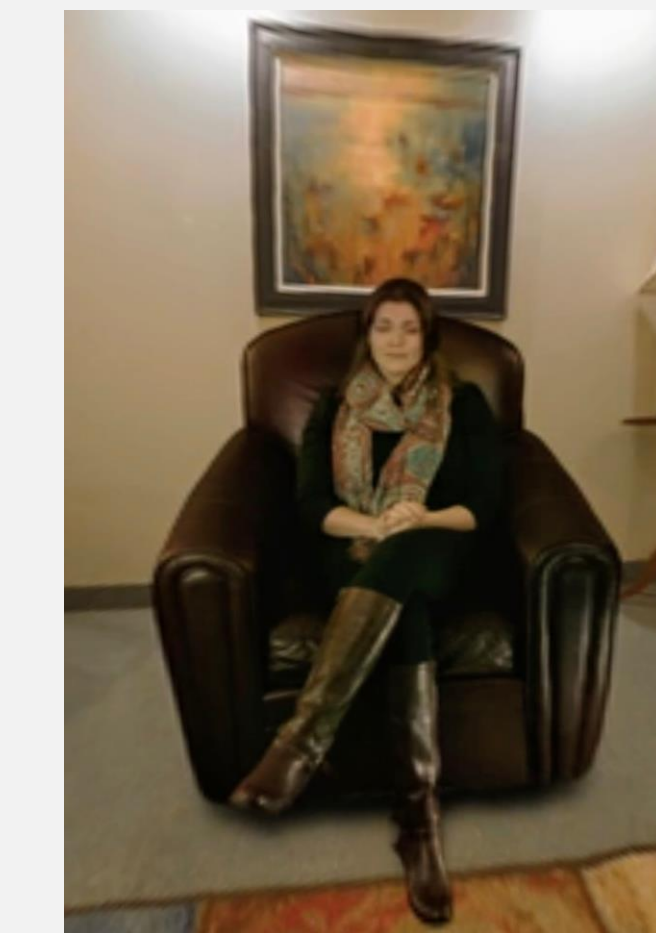
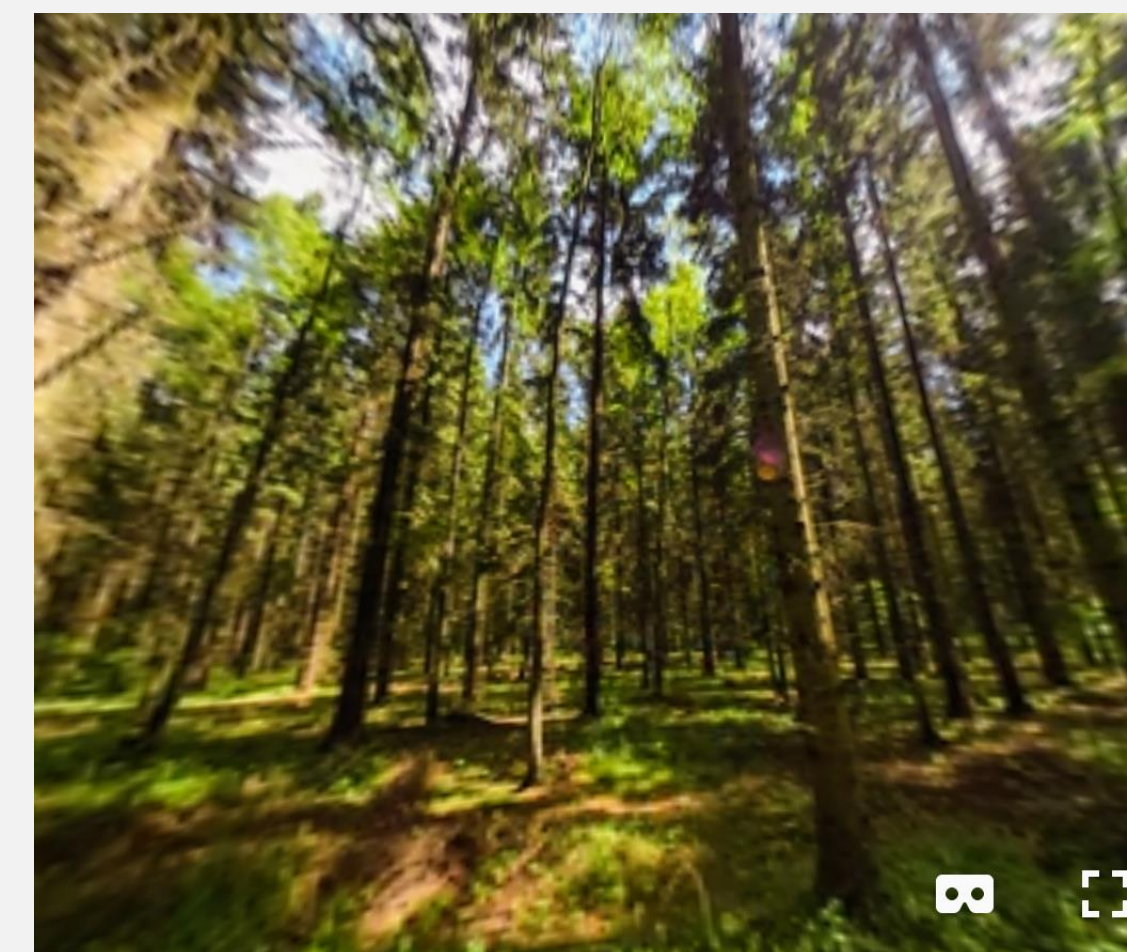
Study Aims: (1) explore patient and providers’ user experiences with the cCBTvr app; and (2) collect feedback regarding the feasibility of the cCBTvr app to be adopted into patient’s daily routines and providers’ workflow.

Conceptual Framework	Measure	Data Source
Efficiency	•Time on task •Reported efficiency	System data, self-report, and focus groups
Effectiveness	•Patient outcomes •Reported effectiveness •Reported errors	System data, self-report, error tracker, and focus groups
Learnability	•Reported learnability	Self-report and focus groups
Satisfaction	•Reported satisfaction	Self-report and focus groups

Fit between Individuals, Task and Technology (FITT)



Conceptual Framework	Measure	Data Source
User	• Participants demographics • Comfort with technology	Self-report and focus groups
Task	•Use of technology •Fit into daily routines •Fit into provider workflows	System data, self-report, error tracker, and focus groups
Technology	•Ease of app •Best and worst features	System data, self-report, error tracker, and focus groups



Participants

Two URM Healthcare Sites

- Post-surgical physical therapy (PT) services
 - 4 sites: Brockport/Strong West; Clinton Crossing; Penfield, Greece
- Behavioral Health Partners (BHP)

Participant-Users

- Providers** (n = 40 physical therapists and behavioral health therapists)
 - Work with patients and receive training to be part of study
- Patients** (n = 100)
 - PT: Rotator cuff/ACL surgery with follow-up PT scheduled (8-10 sessions)
 - Patients identified by coordinators on knee/shoulder teams
 - BHP: enrolled in mental health services for anxiety or depression (treatment~ 10 weeks)
 - Patients identified by therapists

App Training

	Providers	Patients
Training Sessions	<ul style="list-style-type: none"> • 30 minute sessions (individual or small groups) • Provided by member of research team • Separate sessions for PT and BHP 	<ul style="list-style-type: none"> • 30 minute individual session • Provided by member of research team or trained clinical site personnel
Content	<ul style="list-style-type: none"> • Rationale for use of app • Overview of app • Procedure for introducing app to patients • Procedures for checking-in/monitoring patient progress • Study procedures 	<ul style="list-style-type: none"> • Explanation of app and purpose • Overview of app • Downloading app • Instructions for accessing, logging-in, and working through content • Study procedures

Quantitative Methods

System data:

Who, what, where, when, why, and how are patient’s using app

- Log-ins, time spent, modules completed, symptom data, mindfulness activities used, etc.

Attitudes Towards Computers Questionnaire (ATCQ):

35-item self-report scale assesses patient/provider’s attitudes related to computers/internet

- Use 4/7 dimensions (22 items): Comfort, efficacy, interest, and utility

User Version of the Mobile Application Rating Scale (uMARS):

20-item self-report scale assess patient’s perspectives of the usability and feasibility of app

- 4 objective quality subscales: engagement, functionality, aesthetics, and information quality
- 1 subjective quality subscale
- 1 perceived impact subscale

Provider Feasibility Questions:

- 12-item self-report survey regarding feasibility of app for use in clinical practice

Patient-Reported Outcomes Measurement Information System (PROMIS); Anxiety:

- 29-item bank of self-report items
- Assess fear, anxious misery, hyperarousal, and somatic symptoms
- Uses item response theory (IRT)
 - Presentation of items tailored individually to patient and their levels of anxiety

Analytic Plan: Descriptive statistics to examine app use (e.g. frequency, modules completed, drop outs, etc.) and average ratings on self-report measures. Examine relationships between key constructs (e.g. attitudes towards computers and anxiety) and frequency of app use/completeness of modules.

Qualitative Methods

Data Collection

- Structured guided interviews and focus groups will be conducted across two settings
- Discussion questions based on acceptability, usability, and feasibility of cCBTvr app

Participant-User Focus Groups (n = 32)

- Questions will focus on the experience of using the cCBTvr app, technical difficulties, module completion, reactions to content, and symptom management

Provider-Based Focus Groups/interviews (n = 20)

- Questions will focus on work flow, patient reactions, and appropriateness for population

Data Analysis

- Audiotaped and transcribed for thematic analysis to inform app revision and future research
- Key ideas and common themes will be identified

Acknowledgements

We would like to thank the following groups and individuals for their support of this project: The Department of Psychiatry Education Committee; UR School of Medicine & Dentistry, Office of Research; The Health Lab; Department of Orthopedics and Rehabilitation; Behavioral Health Partners (BHP); Drs. Wendi Cross and Michael Hasselberg.