

# APP EVALUATION IN CLINICAL SETTINGS



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## Agenda

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- Research Team
- Evaluation Methodology
- “PTSD Coach” App
- Study Design Lessons Learned
  - Recruitment
  - Fraud Prevention
- Participant Feedback
- Future directions



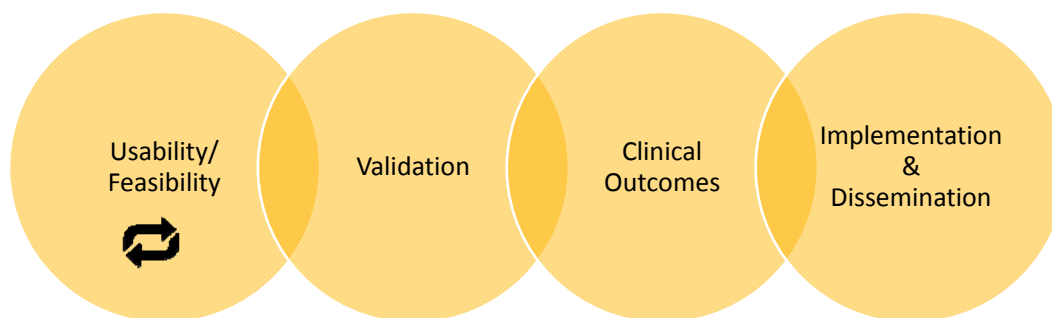
## Team and Research

- Teams
  - Mobile Behavior Design Lab
    - National Center for PTSD, Veterans Administration
  - Stanford Anxiety Clinic
    - Department of Psychiatry
- Locations
  - Clinical Screens: Stanford
  - Recruiting: locally (Fliers) and internet (Google AdWords)
- Research
  - Randomized controlled trial of the mobile device based app “PTSD Coach”

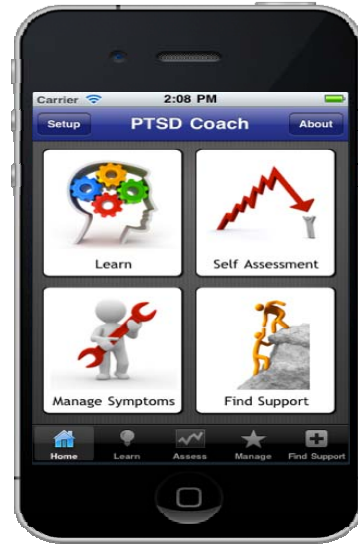
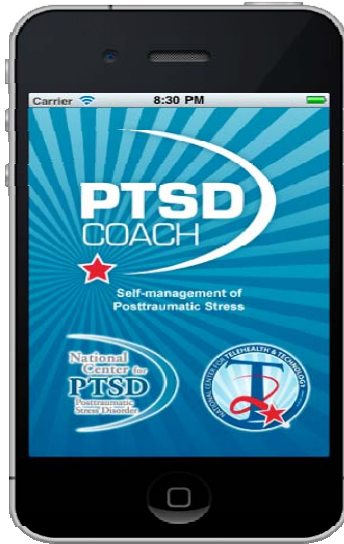


## Mobile App Evaluation

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# PTSD Coach



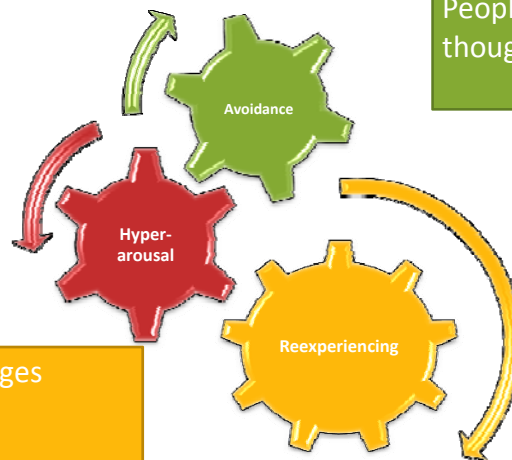
# PTSD Coach Screenshots



## Symptom Interplay of PTSD

Irritability  
Problems sleeping  
Always being on high alert

Intrusive thoughts or images  
Nightmares  
Triggers



People, places, conversations,  
thoughts, situations, etc.

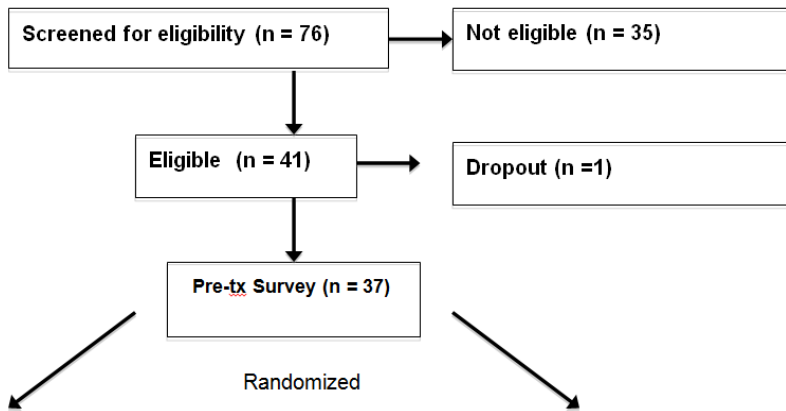


## Study Design – PTSD Coach

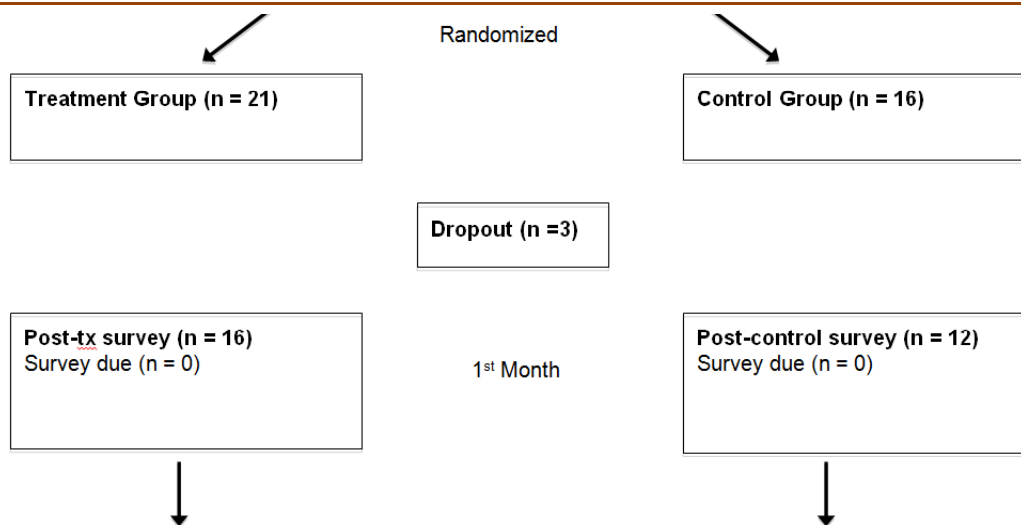
- Design
  - Two arms: App users and Waitlist
  - Clinical screen and diagnostic assessment
  - Online survey used for app feedback
  - One month follow up survey, and two month follow up + crossover
- Recruitment
  - Fliers, Craigslist, Listservs, Google AdWords



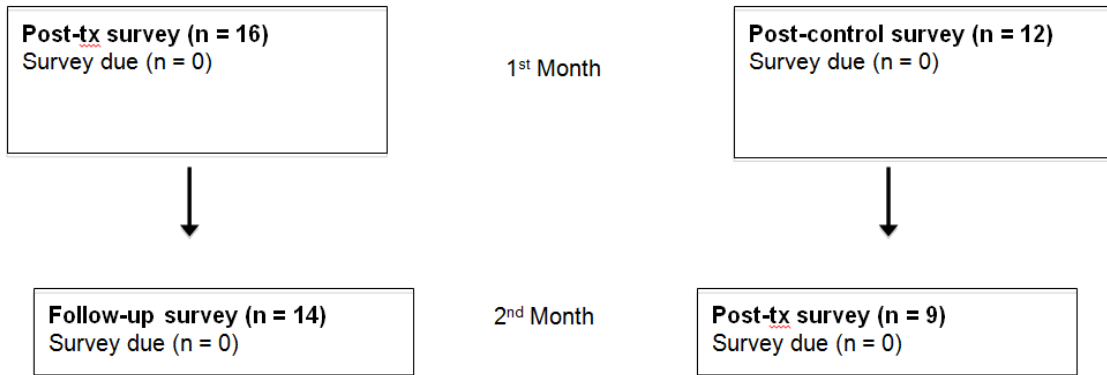
# Consort Diagram



# Consort Diagram – Treatment and Control



## Consort Diagram – Crossover and Follow Up



## Lessons Learned

### Study Design

- Balancing novel interventions vs. novel technology
- Define measures of efficacy

### Population

- Rule-outs, clinical cut-offs, choosing the intervention
- Native Smartphone users vs. non-users

### Recruitment

- Flier vs. Internet, anti-fraud procedures

### Measures

- Usability and Clinical Impact (standard measures vs. design your own)
- Feedback mechanism: we used HIPAA compliant survey tool Qualtrics

### Procedures

- Provided wifi, iTouches (5% loss rate)
- Download size of app was an issue



## Recruitment – Google vs. Fliers

### Google:

- 1 month of ads, budget of \$10 a day
- 541 clicks, 2 participants recruited
- No time cost compared to fliers

### Fliers:

- Posted around Peninsula
- Better return per flier
- Time intensive

Campaign	Budget ?	Status ?	Enhanced ?	↓ Clicks ?	Impr. ?	CTR ?	Avg. CPC ?	Cost ?	Avg. Pos. ?
PTSD Coach Recruitment	\$10.00/day	Eligible	Legacy	541	132,091	0.41%	\$0.55	\$297.57	3.6
Total - all but deleted campaigns				541	132,091	0.41%	\$0.55	\$297.57	3.6
Total - Search ?				540	130,492	0.41%	\$0.55	\$297.20	3.6
Total - Display Network ?				1	1,599	0.06%	\$0.37	\$0.37	4.4
Total - all campaigns	\$10.00/day			541	132,091	0.41%	\$0.55	\$297.57	3.6



## Fraud Prevention

- Capture IP address in survey
  - HIPAA compliant software (Qualtrics, Redcap)
- Gift cards mailed to physical address
  - Avoid online links to gift cards
- Included some redundant demographics or other questions across surveys



## Participant Feedback

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- Where used:
  - “Whenever I felt triggered”
  - “Clinic waiting room”
  - “Friend’s house”
  - “During family events”
- How improve the app:
  - Add diagnostic specific tools
  - Let it know where I am (sensors)
  - Don’t let it know where I am!
  - List programs available
- 19 of 35 people (35%) shared the app with someone
- 15 of 35 (43%) people borrowed iTouch
- 2 reported lost iTouches (13% of borrowed)



## Future Directions

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- Design more apps
- Include device based data tracking, uploading
  - Open mHealth : [openmhealth.org](http://openmhealth.org)
- Methodologies for cross team projects





## Funding

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- National Center for PTSD, Dissemination and Training Division



- <http://www.ptsd.va.gov/about/divisions/dissemination-training-division.asp>



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