Baseline demographic, technology utilization and clinical variables

Variable		PST (N=16)		PST-MF (N=17)		p-value
		n	%	n	%	
Demographics						
Sex (male)		12	75	14	82.35	.69 [c]
Race	American Indian	0	0	1	3	.29 [c]
	Asian	0	0	0	0	
	Black	5	31	9	53	
	Hawaiian	0	0	0	0	
	White	10	63	7	41	
	More than one	1	6	0	0	
Marital Status (married)		9	56	10	59	1.00 [a]
Education						
	High school	4	25	6	18	.23 [a]
	Some college	10	63	6	18	
	College graduate	1	6	4	12	
	Some post graduate	1	6	0	0	
	Post graduate DG	0	0	1	3	
Prior Technology Utilization						
Currently use Smartphone (yes)		13	81	14	82	1.00 [c]
Use smart phone for self-improvement (yes)		4	25	5	29	1.00 [c]
Do not use smart phone apps (yes)		4	25	4	24	1.00 [c]

Used mental health website (yes)	4	25	6	35	.71 [c]
Used mental health apps (yes)	1	6	2	12	1.00 [c]
Used social network (yes)	11	69	14	82	.44 [c]
Use smart phone to manage activity	8	50	11	65	.39 [a]
Use smart phone for shopping	6	38	8	47	.58 [a]
Use smart phone for entertainment	9	56	12	71	.39 [a]
Use smart phone for social network	8	50	11	65	.39 [a]
Use smart phone for improving productivity	9	56	8	47	.60 [a]
Used general healthcare website	10	63	11	65	.90 [a]
Used general healthcare	5	31	7	41	.56 [a]
Used social network apps	8	50	12	71	.23 [a]
Clinical Characteristics					
Major depression (yes)	6	38	9	53	.37 [a]
Dysthymia (yes)	6	55	4	31	.41 [c]
PTSD (yes)	6	38	6	35	.90 [a]
Panic disorder lifetime (yes)	7	44	7	41	.88 [a]
Panic attacks (yes)	4	25	4	24	1.00 [c]
Social phobia (yes)	4	25	6	35	.71 [c]
Obsessive compulsive disorder (yes)	3	19	4	24	1.00 [c]
Alcohol abuse current (yes)	1	6	1	6	1.00 [c]
Substance abuse current (yes)	1	6	0	0	.45 [c]
Generalized anxiety disorder	5	31	5	29	1.0 [c]

Note. PST = Problem Solving Therapy, PST-MF = Problem Solving Therapy plus Moving Forward App;

[a] t-test or Wilcoxon test for continuous variable, Chi-square test for categorical variable

[b] Wilcoxon test for continuous variable not follow Normal distribution

[c] Fisher's test

Clinical Outcomes for Depression, Anxiety, Stress, Quality of Life, and Homework Completion.

	Baseline					Week 6					Week 12				
	PST		PST – MF			PST		PST – MF			PST		PST – MF		
	N=16		N=17			N=16		N=17			N=13		N=14		
	M	SD	M	SD	*d*	M	SD	M	SD	*d*	M	SD	M	SD	*d*
DASS															
Depression	18.50	12.10	16.48	9.74	.18	13.00	9.40	12.54	10.40	-.05	10.46	10.30	12.28	11.52	-.17
Anxiety	14.26	11.66	13.30	9.02	.08	9.62	8.84	9.74	8.98	.01	11.24	9.18	14.42	9.06	.35
Stress	22.38	11.50	22.00	8.06	.04	18.50	9.98	17.174	10.16	-.08	16.46	10.62	22.58	13.18	.51
SF-12V															
MCS	34.83	6.07	36.98	5.65	.35	37.19	7.50	4 .00	6.77	.40	40.15	10.89	39.92	8.93	- .02
PCS	58.39	6.69	56.42	5.60	-.31	43.03	6.15	40.02	5.20	-.53	43.43	4.89	41.10	6.07	-.42

Note. DASS = Depression (range = 0-28), Anxiety (range = 0-20), Stress (range = 0-34) higher scores represent more distress SF-12V = The Short Form 12-Item Health Survey for Veterans, MCS= mental health quality of life (range = 0-100, higher scores represent better functioning), PCS = physical health quality of life (range = 0-100, higher scores represent better functioning).

Emerging themes for SmartPhone Interviews

Themes	Quotes
Convenience/accessibility	"Like I said, if I started getting down and depressed, [I'd] go to the app. Look on the app, follow directions on the app." "I just used it whenever I got some free time. I just pulled it out and looked at it. So, I used it spontaneously as well as whenever the time created, you know, allowed me to go and look at it - off the job or at home. You know, sitting at home I pull the app out and look at it. Well, the restaurant, work, home."
Empowerment	"[The app] made me realize that I can do it. I can hit the problem straight on without letting it get to me, and building up, and putting me in a depressing mood, or letting it eat at me until I can't take no more and then balled up and explode. […] It's best to just go ahead and solve your problem, bring it right up to the open and let it go." "I had to do it on my own. I could do it on my own. Instead of just sitting around being depressed - get up and do something to fix [the problem]. So during those six weeks, I read the apps a lot. I filled out the worksheets. And I got up, I started moving around, you know. I realized that no matter how bad things get, there's always a solution." "It seemed like on this last six (weeks of therapy), it was like I was just on my own. Okay, but, I've got the app, you know. I go to the app, I tackle my problems, solve my problems. Like I said, that's where I solved them on my own, which I pat myself on the back there. I did it. I did it by myself."
Engagement in healthy behaviors	"Creating the phone…that was a genius plan, 'cause when people get frustrated nowadays, the first thing they do is pick up their smart phone and google stuff, or

they go to Facebook, social media, express themselves.. They put their emotions on there for the whole world to see. I'm not into that, but I do pick up my phone and find something to do. And since I've had that app, I haven't played one game with my phone. [laughs] I stopped playing games on my phone."

Stigma and shame reduction

"I thought [the app] was really unique and a different way of reaching out to veterans. […] Because when you're first talking to a person you're like: 'Hmm, should I divulge this or should I not?'"

"You can talk about whatever you want without, you know, feeling shame, or [wondering]: 'Did I share too much?'"

"What does somebody think you're doing? You're on Facebook, you're on Twitter. They don't know exactly what you're doing because you're right there, and you got the app right there in front of your face, and they can't see what you're doing but you. And then if they ask you what you're doing, if you want to tell them, "Hey, I'm doing my therapy."

Extra support offered by the app

"It (i.e., the app) could be [used] in the morning, or noon, or sometime you wake up in the middle of the night and can't go to back to sleep, you can go through the app and look at some things."

"Going through the therapy and the actual sessions and stuff was alright. But, [the app] actually enlightened me, informed me on […] some stuff I knew, but I didn't use. I guess it made me start using it. Some of like the breathing techniques: I've [known] this whole time [that if you] get angry, count to ten. But I just didn't apply it until I started using the app."

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                    │   Assessed for eligibility (n= 52)   │
                    └─────────────────────────────────────┘
                              │
                    ┌──────────────────┐        ┌──────────────────────────────┐
                    │   Enrollment     │        │ Excluded (n= 19)             │
                    └──────────────────┘        │ - Not meeting inclusion      │
                              │          ────►  │ criteria (n=3)               │
                              │                 │ -  Declined to participate   │
                              │                 │ (n=6)                        │
                              │                 │ - Other reasons (n= 9)       │
                              │                 │ - Did not meet inclusion     │
                              │                 │ criteria after Ax (n = 1)    │
                              │                 └──────────────────────────────┘
                    ┌─────────────────────────────┐
                    │   Randomized (n= 33)         │
                    └─────────────────────────────┘
                              │
                    ┌──────────────────┐
                    │   Allocation     │
                    └──────────────────┘
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Assessed for eligibility (n= 52)

Enrollment

Excluded (n= 19)
- Not meeting inclusion criteria (n=3)
- Declined to participate (n=6)
- Other reasons (n= 9)
- Did not meet inclusion criteria after Ax (n = 1)

Randomized (n= 33)

Allocation

PST-MF
(n= 17)

PST
(n= 16)

6-week Follow-Up

Completed 6-week follow-up
(n = 15)

Completed 6-week follow-up
(n = 16)

12-Week Follow-up

Completed 12-week follow-up
(n = 14)

Completed 12-week follow-up
(n = 13)