

Patient Satisfaction with a Novel Sleep Telehealth Platform in the US Military

Julianna P. Adornetti, Kathleen Huang, Janet M. Venezia, Christine W. Johnston, Rachell L. Jones, Jacob F. Collen, Vincent F. Capaldi, Scott G. Williams, Samson Z. Assefa, Jennifer S. Albrecht, & Emerson M. Wickwire

Introduction

There is a gross shortage of sleep clinicians within the military health system. To increase access to care, a novel telehealth platform was designed to empower patients and clinicians to make evidence-based sleep treatment decisions.

Methods

Remote participant recruitment:

Contacted 661 people | 270 participants began study

Intensive remote monitoring assessment via mobile app (WellTap®):

Day 0

Baseline sleep & health assessments

Days 1-10

Daily sleep diaries

2x/day symptom surveys

Wearable device (Fitbit®)

Day 11

Satisfaction survey

Personalized sleep report

Days 12-17

Personalized sleep education and daily training

Day 18

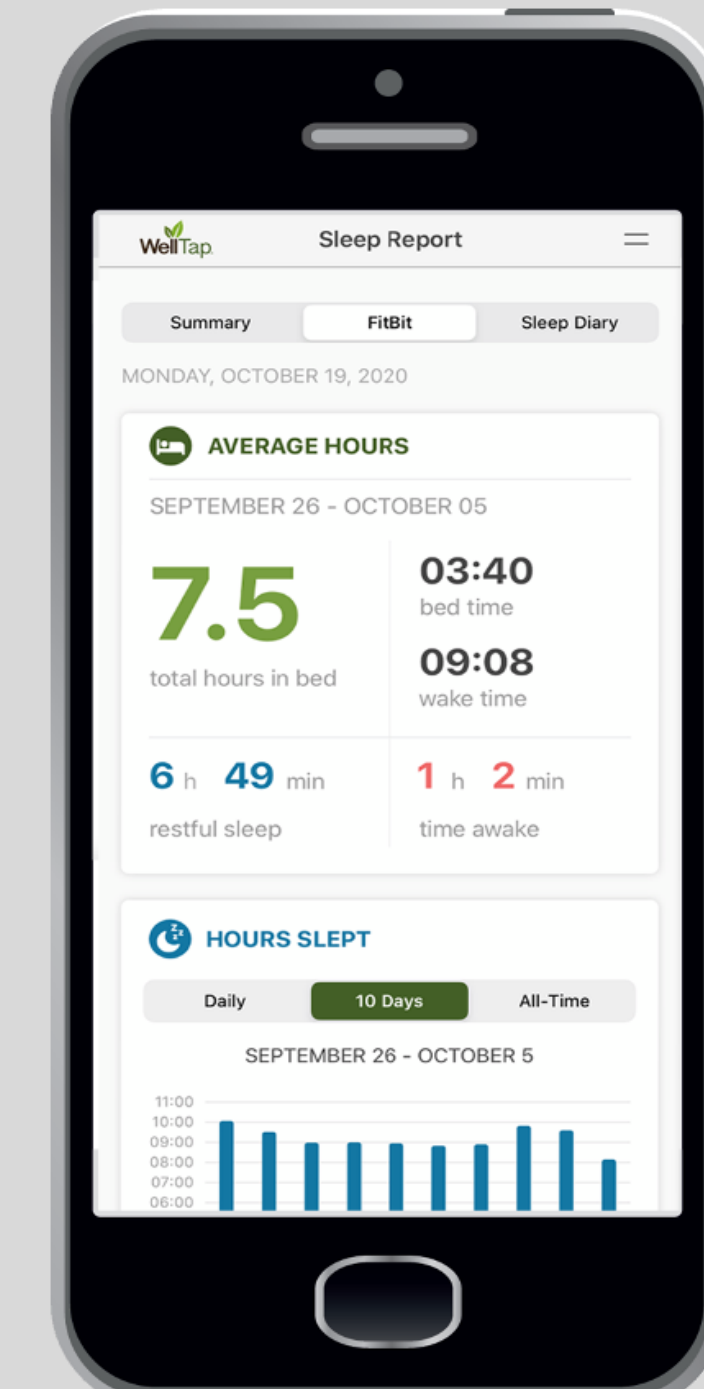
16-item RE-AIM outcomes questionnaire

- Domains assessed: Reach, Effectiveness, Adoption, Implementation, and Maintenance (RE-AIM)
- Responses ranged from 0=Not at all to 4=Very Much
- Perceived effectiveness was defined as overall satisfaction, usability, perceived improvement, credibility, and acceptability

Personalized sleep report, education and training:

Based on remote monitoring assessment, patients received personalized assessment results and personalized, multimedia sleep education and daily training day within the mobile app.

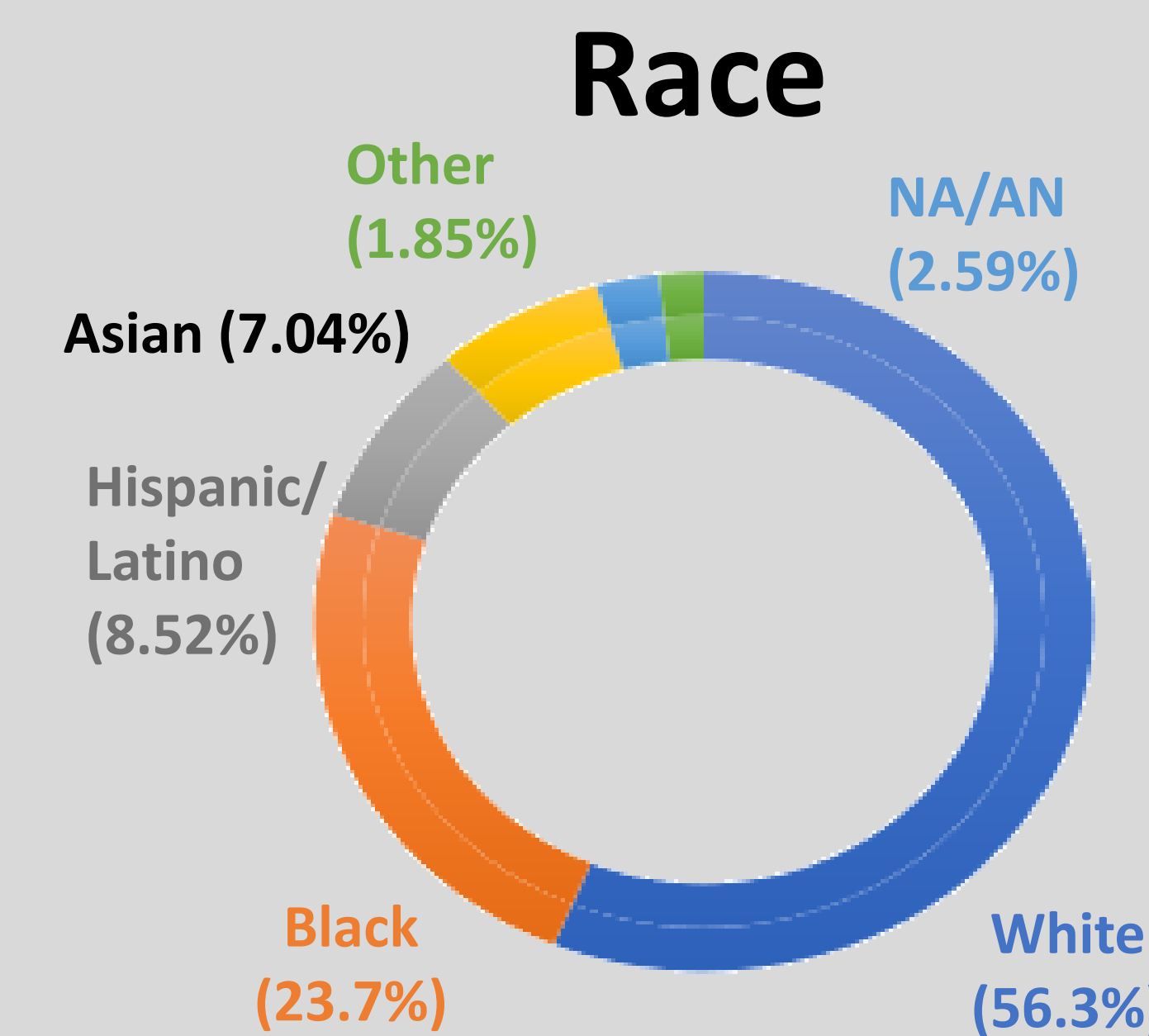
Concurrently, a provider report was generated in editable electronic document format that included provisional diagnoses and evidence-based treatment recommendations.



Results

45.8y

55% Male



Active-Duty Military 41%

Retired Military 27%

Civilian 25%

Table 1: Patient adherence (n=270)

Completed Measures	Frequency	Percentage
Baseline sleep & health assessment	270	100%
Satisfaction survey (Day 11)	267	99%
RE-AIM questionnaire (Day 18)	251	93%
Fitbit data	247	91%
Daily sleep diaries (Days 1-10)	257	95% (Range: 70-100%)
Daily symptom surveys (Days 1-10)	257	95% (Range 80-100%)

Table 2: Questionnaire results (n=270)

Assessment	Thresholds	Frequency	Percent
Insomnia Severity Index	No insomnia symptoms	53	19.6%
	Subthreshold (mild) insomnia	114	42.2%
	Moderately severe insomnia	87	32.2%
	Severe insomnia	16	5.9%
Epworth Sleepiness Scale	Normal	166	61.5%
	Excessive daytime sleepiness	71	26.3%
	Severe daytime sleepiness	33	12.2%
Berlin Questionnaire	Low risk OSA	93	34.4%
	High risk OSA	177	65.6%
Patient Health Questionnaire-9	Minimal depressive symptoms	113	41.9%
	Mild depression	102	37.8%
	Moderate depression	39	14.4%
	Moderately severe depression	14	5.2%
	Severe depression	2	0.7%
Generalized Anxiety Disorder-7	No anxiety	164	60.7%
	Mild anxiety	68	25.2%
	Moderate anxiety	24	8.9%
	Severe anxiety	14	5.2%

Table 3: Perceived effectiveness of personalized sleep report, education, and training (n=251)

Outcome Domains	Report*	Education and training*
Overall satisfaction	77%	80%
Usability	85%	87%
Perceived improvement (Understanding of Sleep Problems)	73%	43%
Credibility	83%	86%
Acceptability for adoption	85%	87%

*Sum of positive responses: [term], mostly [term], or very much [term].

- 82% would “recommend,” “mostly recommend,” or “very much recommend” the sleep app.
- 92.4% would “likely,” “most likely, or “very likely” continue to use the app themselves.

Conclusions

- Patients were highly engaged with a novel 10-day intensive remote monitoring assessment, including a mobile health assessment and wrist-wearable device.
- Patients generally rated perceived effectiveness of a personalized sleep report and personalized sleep education favorably across multiple domains.
- Patients suggested improvements: greater clarity w/ assessment vs training, provider involvement, and support from a potential human Sleep Navigator.
- Limitations: non-randomized convenience sample from two medical centers in one geographic region; a relatively short 3-week study period; and lack of clinician assessment including sleep testing.
- Future studies should evaluate the clinical and economic impact of sleep telehealth and remote monitoring in the U.S. military.

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