Integrating Digital CBT-I into a Comprehensive Value-Based Telehealth Sleep Service

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Introduction

Cognitive-Behavioral Therapy for Insomnia (CBT-I) is recognized as the first-line treatment for chronic insomnia but it is massively under-utilized relative to the prevalence of chronic insomnia.[1,2]

Digital CBT-I (dCBT-I) is a scalable, automated version of CBT-I that can potentially address this disparity. However, challenges with reimbursement for digital therapeutics in traditional fee-for-service models have limited delivery of, and access to dCBT-I.

Value-based care is a disruptive healthcare delivery model emphasizing patient outcomes and cost-effectiveness rather than volume of service. While this model has been applied to the treatment of obstructive sleep apnea (OSA), it has not yet been examined for using dCBT-I in chronic insomnia.

This study examined preliminary real-world data for integrating an FDA-cleared dCBT-I into a value-based telehealth sleep service.

Methods

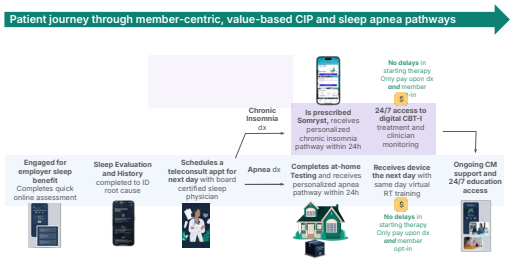
Data were captured from an electronic health record system as part of ongoing clinical care from patients presenting to a comprehensive value-based sleep service between January 1, 2025 – November 1, 2025.

The value-based telehealth sleep service (all virtual) consisted of: 1) online questionnaire to gather medical history and symptoms, 2) telehealth visit with a board-certified sleep physician, 3) diagnosis and treatment as appropriate:

- Chronic insomnia: Patients were offered Somryst, an FDA-cleared, automated, 6-session dCBT-I program supported by a care team trained to provide patient assistance. Renewals were granted as needed after the 9-week prescription for up to 12 months.
- OSA: Patients suspected of OSA received a home sleep apnea test. Those who tested positive for OSA were subsequently offered positive airway pressure (PAP) therapy complemented by telehealth monitoring and patient support with supplies as needed for 12 months.

The timing and order of treatments were determined by the sleep physician. See Figure 1 for treatment pathway.

Figure 1: Care Pathway for OSA and Chronic insomnia



Results

Figure 2: Patient Flow Diagram

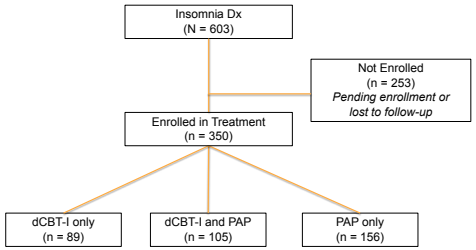


Table 1: Participant Characteristics

	dCBT-I only (n=89)	dCBT-I and PAP (n=105)	PAP only (n=156)	Total (n=350)
Race (n, %)				
African American	18 (5.1%)	17 (4.9%)	18 (5.1%)	53 (15.1%)
Asian	4 (1.1%)	4 (1.1%)	5 (1.4%)	13 (3.7%)
Caucasian	24 (6.9%)	41 (11.7%)	74 (21.1%)	139 (39.7%)
Hispanic	7 (2.0%)	6 (1.7%)	7 (2.0%)	20 (5.7%)
Middle Eastern	0 (0.0%)	2 (0.6%)	0 (0.0%)	2 (0.6%)
Native American	0 (0.0%)	0 (0.0%)	1 (0.3%)	1 (0.3%)
Gender (n, %)				
Male	26 (7.4%)	31 (8.9%)	59 (16.9%)	116 (33.1%)
Female	55 (15.7%)	66 (18.9%)	88 (25.1%)	209 (59.7%)
Undefined	8 (2.3%)	8 (2.3%)	9 (2.6%)	25 (7.1%)
Age (Mean, SD)				
All	48.4 (10.8)	52.4 (10.7)	50.0 (10.6)	50.3 (10.8)
Male	48.6 (10.0)	53.5 (10.5)	50.1 (10.2)	50.6 (10.4)
Female	49.0 (10.7)	51.7 (10.9)	50.3 (11.0)	50.4 (10.9)
Undefined	44.0 (12.6)	54.4 (10.1)	46.7 (7.9)	48.3 (11.2)

A total of 603 patients were diagnosed with insomnia and offered dCBT-I

- 350 (58.0%) enrolled in treatment
- 253 (42.0%) were still in progress or lost to follow-up.

Those enrolled in treatment (M=50.3 years) were significantly older (p<.05) compared to those still in progress or lost to follow-up (M=45.6 years).

Patients who received both dCBT-I and PAP (M=52.5 years) were significantly older (p<.05) than patients who received dCBT-I only (M=48.4 years). No significant differences were found in gender or ethnicity.

Conclusions

These initial findings support the feasibility of a novel, fully-connected value-based sleep service featuring dCBT-I and PAP delivered using virtual care.

The findings indicate the potential use of dCBT-I concurrently with PAP, which could be particularly important for improving outcomes in older patients with comorbid insomnia and sleep apnea (COMISA).

Limitations: These are real-world data and those who have not enrolled and any missing data might not be at random.

Future research should examine clinical outcomes and other aspects related to delivery of dCBT-I in value-based care models.

References: 1. Edinger JD, Arnedt JT, Bertisch SM, Carney CE, Harrington JJ, Lichstein KL, Sateia MJ, Troxel WM, Zhou ES, Kazmi U, Heald JL, Martin JL. Behavioral and psychological treatments for chronic insomnia disorder in adults: an American Academy of Sleep Medicine clinical practice guideline. J Clin Sleep Med. 2021 Feb 1;17(2):255-262. doi: 10.5664/jcsm.8986. PMID: 33164742; PMCID: PMC7853203.
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