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DEMENTIA CARE RESEARCH AND PSYCHOSOCIAL FACTORS

POSTER PRESENTATION

DEMENTIA CARE RESEARCH

The feasibility of a tai chi for sleep intervention for persons with MCI and their caregivers

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Abstract

Background: Persons with mild cognitive impairment (PwMCI) and caregivers commonly experience low quality sleep which is associated with increased stress. Tai Chi has shown tremendous promise for stress reduction and improving sleep quality in older adults and those with MCI. Our objective was to test the feasibility of a Tai Chi for sleep intervention among PwMCI and their caregivers.

Method: Participants were 12 PwMCI (3 female, 50% African American/Black, M = 75.4 years) diagnosed from Emory's Cognitive Neurology Clinic and their 12 spousal caregivers (8 female, 50% African American/Black, M = 74.6 years). Participants used a bed sensor, an Oura ring, and completed morning and evening sleep diaries for 10 days. The evening diary included an embedded 10-minute Tai Chi video curated by a Tai Chi master. Data were analyzed using descriptive statistics (see Table 1) and paired t-tests to assess feasibility according to acceptability, demand, implementation, and preliminary efficacy.

Result: *Acceptability:* Participants reacted positively to each of the intervention components and the study overall. Participants enjoyed Tai Chi, the bed sensors were easy to deploy, participants enjoyed using the Oura ring, and post-participation study enjoyment ratings were high.

Demand: High interest in study participation among PwMCI and caregivers was supported by greater than 55% of nightly Tai Chi participation. However, caregivers were more likely than PwMCI to complete Tai Chi.

Implementation: The study components were largely executed as planned. Diary completion rates across the morning and evening forms were very high for PwMCI (85.83%) and caregivers (96.25%). The bed sensors were successfully self-installed for five dyads and Oura ring use was near-perfect across all participants.

Preliminary efficacy: Although limited, sleep and stress data from our diverse convenience sample supports employing our intervention approach and methods in a larger study focused on quantifying and improving sleep for PwMCI and their caregivers. Nightly stress was lower on average after completing Tai Chi compared to before for PwMCI and was significantly lower for caregivers ($t(74) = 5.08$, $p = < .001$).
Conclusion: Our Tai Chi for sleep intervention was feasible for PwMCI and their caregivers. This approach warrants further exploration for improving sleep quality and stress reduction.

Table 1. Intervention Feasibility Results

Key Area of Feasibility	Outcome of interest	PwMCI	Caregivers
Acceptability	Enjoyed Tai Chi	92.3%	89.7%
	Mean: Diaries were easy to complete rating	86.42 (15.32)	89.5 (9.57)
	Mean: Bed sensor was easy to use/install rating	86.75 (15.13)	95.6 (5.77)
	Mean: Enjoyed using Oura ring rating	90.91 (16.21)	90.5 (14.64)
	Mean: Enjoyed participating in the study rating	85.75 (20.24)	89.5 (9.55)
Demand	Tai Chi: % complete	33.7%	57%
	Tai Chi: % partial completion	23.9%	11.4%
	Tai Chi: % non-participation	42.4%	31.6%
Implementation	Morning sleep diary completion rate	88.3%	97.5%
	Evening sleep diary completion rate	82.5%	95%
	Bed sensor installation success rate	100%	100%
	Oura ring - nights of sleep recorded	94.17%	99.17%
Preliminary Efficacy	Sample characteristics: % underrepresented	66.67%	66.67%
	Mean: Pre-Tai Chi stress nightly rating	28.87 (21.55)	30 (25.39)
	Mean: Post-Tai Chi stress nightly rating	21.36 (22.49)	13.64 (18.76)
	Mean: Daily sleep quality rating	74.11 (19.9)	73.02 (24.0)
	Mean: Pre-study PSQI	4.92 (3.61)	5.75 (3.47)
	Mean: Post-study PSQI	5.33 (6.64)	5.67 (3.79)
	Mean: I learned a great deal about my sleep	84.17 (18.21)	80.83 (29.94)

Intervention feasibility by key area and associated results for PwMCI and caregivers. Standard deviations are shown in parentheses; Enjoyed Tai Chi = % "Yes" responses after participating each night; diaries and bed sensors being easy ratings were out of 100 with higher scores indicating more ease; enjoyed using Oura ring ratings were out of 100 with higher scores indicating more enjoyment; mean enjoyed participating in the study ratings were out of 100 with higher scores indicating more enjoyment; Bed sensors were deployed with N= 5 dyads and required self-installation by participants; Sample characteristics % underrepresented: results represent racial or sexual orientation minority representation; nightly stress ratings were out of 100 with lower ratings indicating lower stress; daily sleep quality ratings were out of 100 with higher scores indicating better sleep quality; PSQI= global Pittsburgh Sleep Quality Index scores (scores greater than 5 imply significant sleep difficulties).