

Potential Benefits of Brief Daily Meditation on Pain Levels and Opioid Use In Patients with Neurological Impairment

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BACKGROUND & INTRODUCTION

- Mindfulness meditation is the practice of focusing on your emotions, thoughts, and sensations in the present moment.
- Intensive 8-week meditation course has shown to improve chronic pain in patients taking opioids.
- “Brief daily meditation” (as used in our study) has shown to improve pain acceptance and decrease rates of opioid relapse.
- Few studies have explored the effects of meditation on pain in patients with neurological impairment.
- *Question:* Can brief daily meditation be used in inpatient rehab as an alternative to opioids to help neurologically impaired patients with pain?

DESIGN

- Population: Patients with neurological impairment in an inpatient rehabilitation facility (IRF)
- Intervention: The free meditation app *Insight Timer* was downloaded onto patients’ phones. Patients meditate 10 minutes daily in rehab.
- Patients’ perceptions of meditation as a means of pain management was recorded in pre- and post-study surveys.
- See Figure 1 for patient enrollment and exclusion criteria.
- Historical controls matched to study subjects by age, race, sex, length of stay, and impairment code (Table 1).
- Unpaired t-test used to compare pain scores and opioid PRN frequency between study subjects and controls.

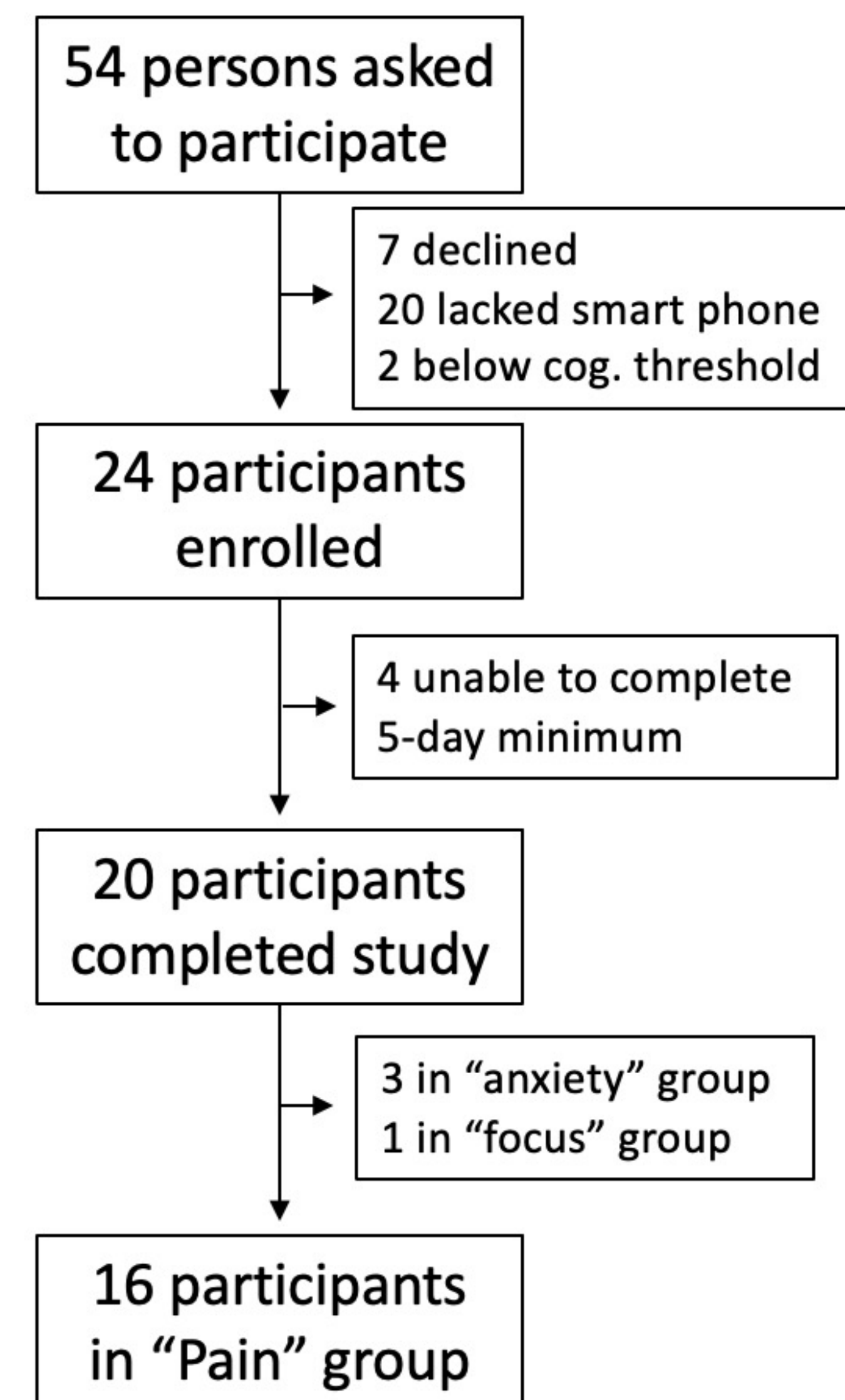


Figure 1: Enrollment and exclusion criteria.

Impairment	N
Stroke	2
Non-traumatic brain	1
Traumatic brain injury	2
Non-traumatic spinal cord	6
Traumatic spinal cord injury	1
Other orthopedic	2
Polyneuropathy	1
Debility	1

Table 1: Impairment codes used to match study participants to historical controls.

	Avg. Age	Sex (% F)	Race (% AA)	Avg. LOS
Meditation	50.5	50	56	22
Control	53.2	56	31	17

Table 2: Demographic comparisons between meditation and control groups.



A free **mindfulness** app downloaded onto patients’ **smartphones** can be used to deliver brief daily meditations to those recovering from **neurological damage**. Feedback suggests that meditation is a favorable addition to inpatient rehab with potential to serve as a useful adjunct to pharmacologic therapy for pain.



Take a picture to download the app! (*Insight Timer*)

SURVEYS: WHAT DID PATIENTS THINK?

Participants were “very” likely to continue using the app (4.2/5), and “completely” enjoyed the daily meditations (4.8/5). Following the intervention, patients were more confident that daily meditation could reduce their need for pain medications (Figure 1). Patients reported that meditations “Reduced the amount of pain”, “Relaxes and motivates you”, and that “Making meditation more accessible to patients in the hospital helps with stress and anxiety”.

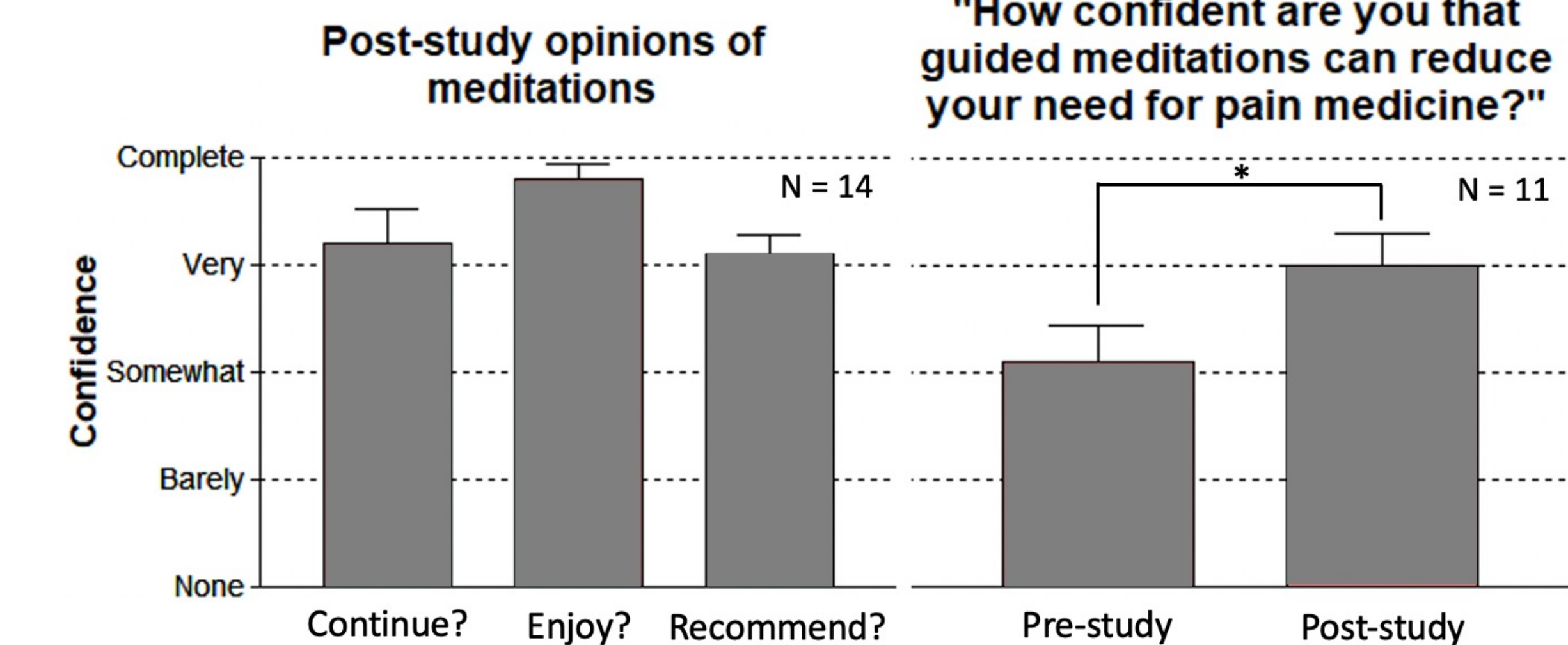


Figure 2: Survey results gauging confidence of brief daily meditations by study participants. 1 = ‘None’, 2 = ‘Barely’, 3 = ‘Somewhat’, 4 = ‘Very’, 5 = ‘Complete’. Pre-study confidence in efficacy of meditation for pain: 3.09 +/- 0.94. Post-study confidence: 4 +/- 1.00. p = 0.0242.

Effects on Pain Levels and Opioid Usage

- Average pain reported by patients was less in the meditation group than in controls, however, this difference was not significant (Figure 2). A power analysis was performed indicating that a minimum of 35 subjects would be required for meaningful effects to be detected.
- There was no significant reduction seen in PRN opioid use (Figure 3).

Subjective Pain Scores

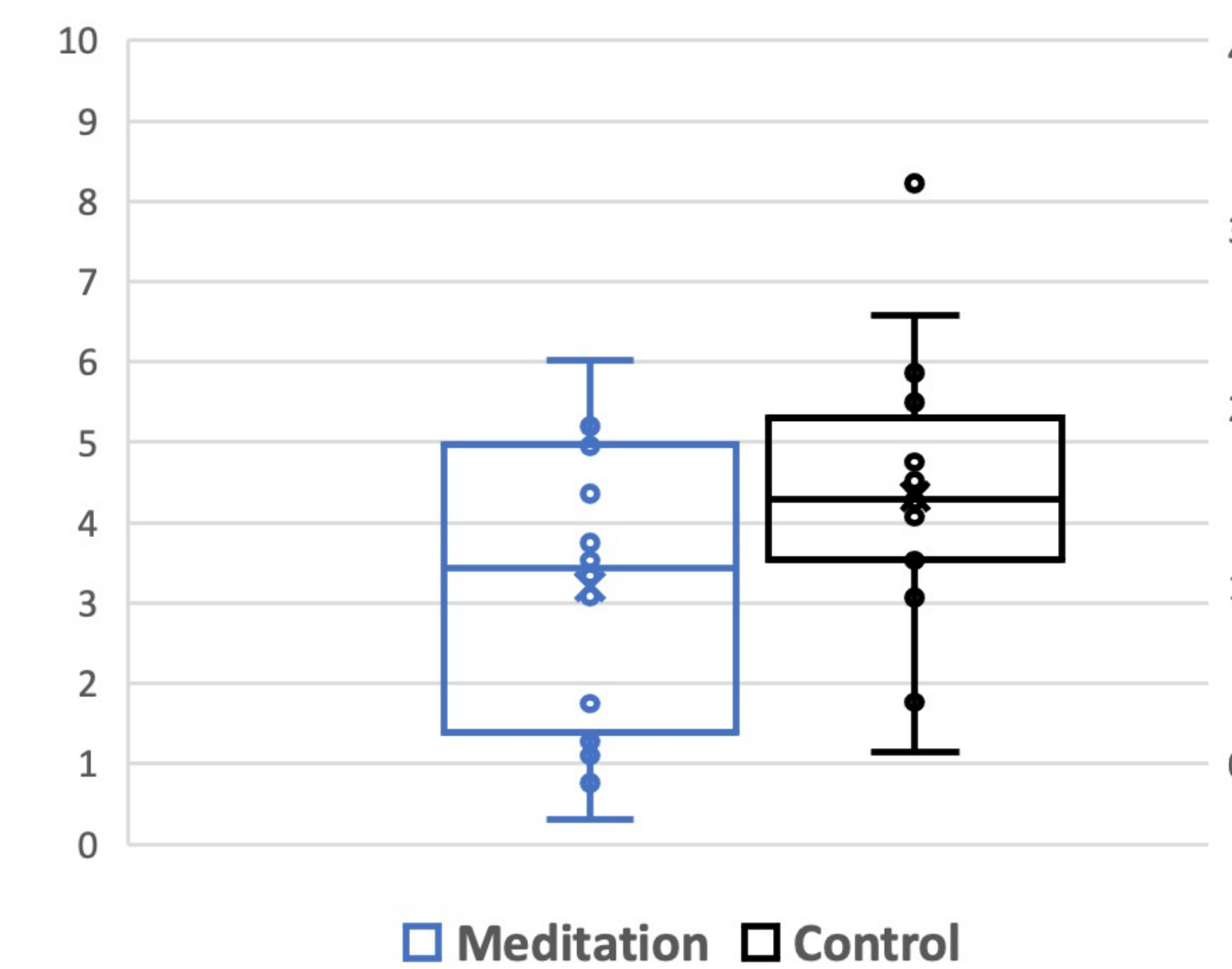


Figure 3: Box and whisker plots of subjectively reported pain scores averaged over the rehab stay for each subject in meditation and control groups. Meditation group: 3.21, 95% CI [2.32, 4.1]; control group: 4.33, 95% CI [3.49, 5.17]. N = 16. p = 0.083.

Daily PRN Opioid Use

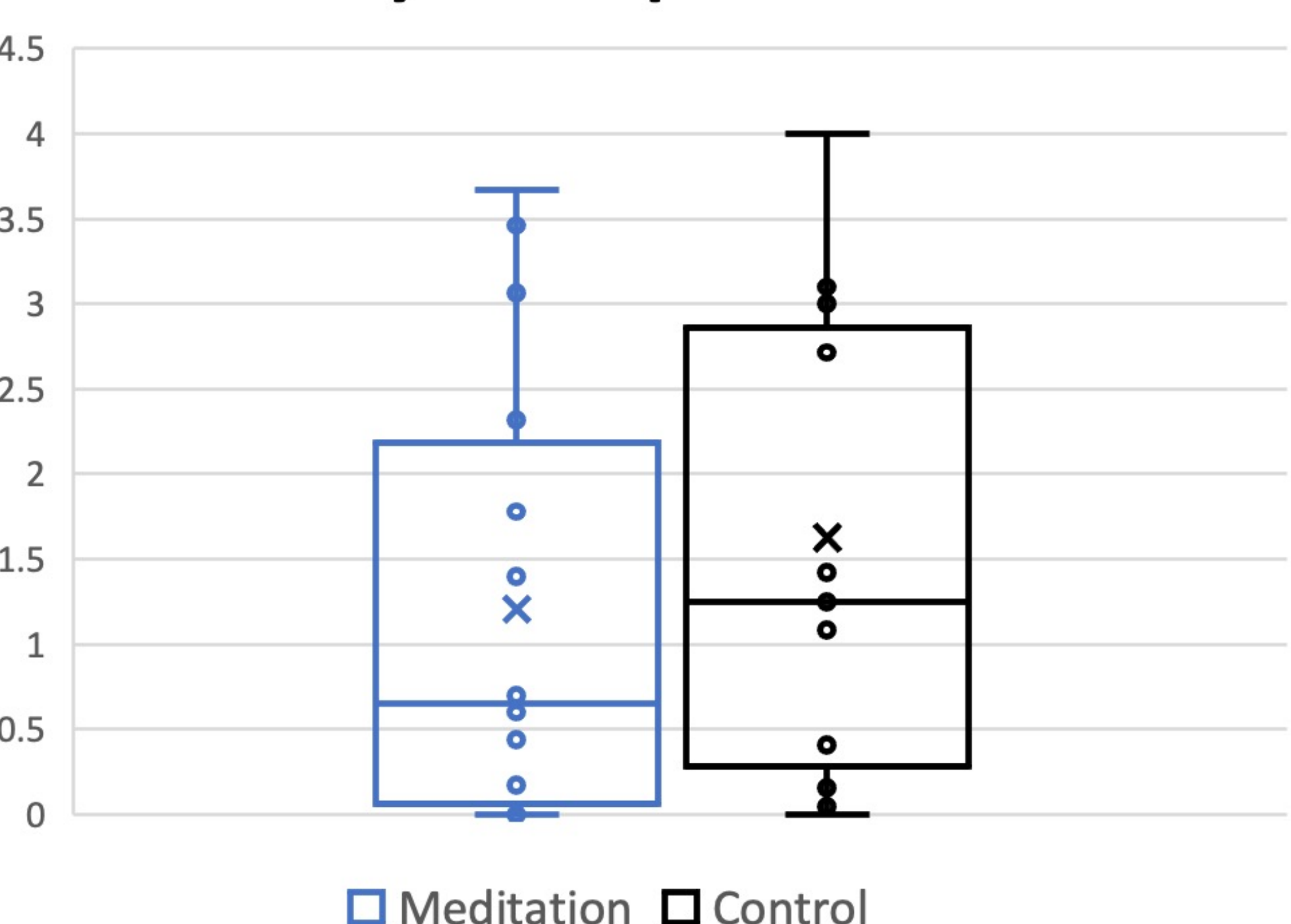


Figure 4: Box and whisker plots of average daily opioid frequency for meditation and control groups. Meditation group: 0.709, 95% CI [0.082, 1.34] ; control group: 1.205, 95% CI [0.569, 1.84]. N = 16. p = 0.278.

TAKEAWAYS

- Elderly patients less likely to have functioning smartphones, thus more likely to be excluded
- Patients largely preferred meditating alongside the researcher to help them stay on task
- Nurses were very accommodating, although coordinating 10-minute slots without interruption proved challenging, and patients were sometimes unable to be reached for meditations due to medical and rehab requirements.

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References: Dindo L, et al. 2018; Hilton L, et al. 2017; Zgierska AE, et al. 2017; Bloom-Foster J, et al. 2020;26(1); Howarth A, et al. 2019

