

INTRODUCTION and AIMS

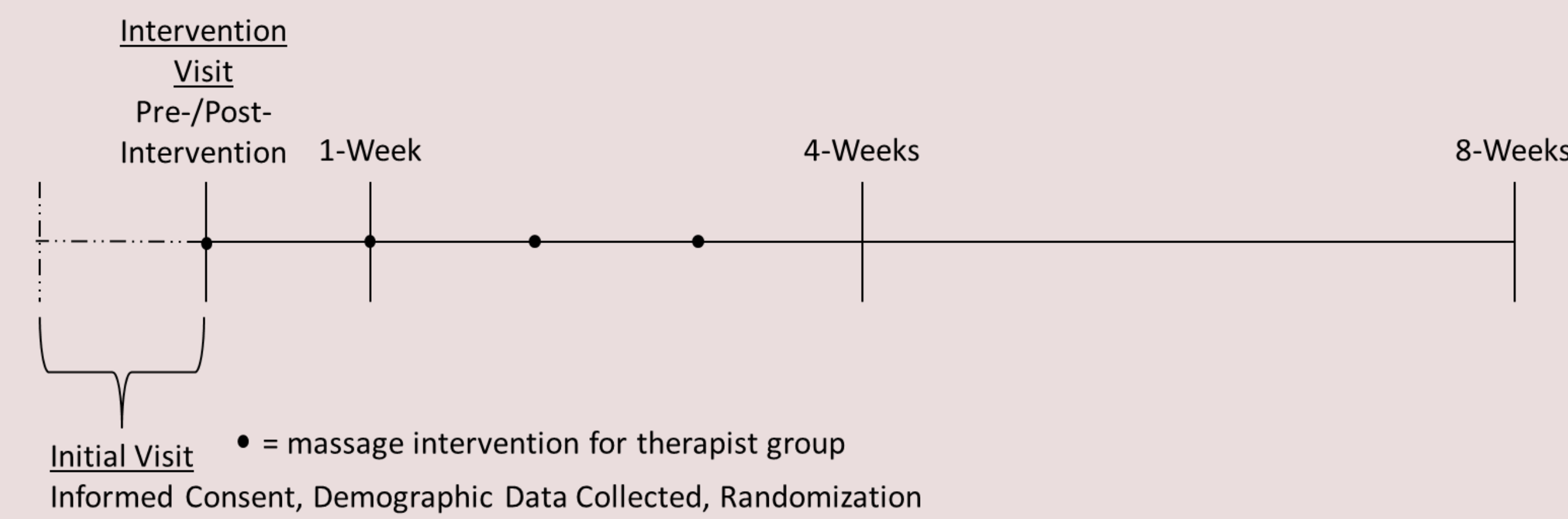
Massage is promising for chronic neck pain (CNP) but accessibility is limited due to out-of-pocket costs. Trigger points contribute to CNP and trigger point self-care (TrPtSc) may be an effective way for massage benefit to reach broad populations. This proof-of-concept/feasibility study sought to examine trigger point self-care for CNP compared to therapist applied massage and control.

METHODS

Design (Figure 1)

Pre- post-intervention cohort study with follow-up measures at 1-, 4-, and 8-weeks. Data collected through Research Electronic Data Capture (REDCap).

Figure 1: Participant Study Timeline



Participants

Participants were recruited via word-of-mouth and with the combined efforts of Regenstrief Data Core and the Indiana Clinical and Translational Sciences Institute's (CTSI) Subject Enrollment and Research Volunteer Engagement Program (ResNet). Inclusion criteria reflect prior massage for CNP research.¹

Inclusion Criteria

- Community dwelling adults, 18 years and older
- Self-reported non-specific, uncomplicated neck pain

Exclusion Criteria

- Massage for neck pain in past year or any in the last three months
- Neck pain lasting < three months or < 5 on Neck Disability Index
- Mild symptoms (< 4 on 11-point pain intensity scales)
- Morbid obesity (BMI ≥ 35)

Randomization

Following demographic data collection, participants were randomized to one of three groups:

- TrPtSc:** 3.5 hour workshop including general instruction, demonstration and practice for trigger points self-care treatment. Participants were assessed and given individualized self-care treatment plans.
- Therapist Provided Massage:** 4 weekly, 60-minute individualized massage therapy sessions.
- Waitlist Control:** Data collection only with option to experience both interventions upon completion.

Outcomes and Analysis

Neck pain intensity was measured via two means:

- 11-point numeric rating scale assessing current, worst, and best pain over the past week
- Visual Analogue Scales (VAS) for current, average and worst over the past week

All analyses were performed using SAS V9.4.

- Baseline differences were examined with Fisher's exact test for categorical variables and analysis of variance (ANOVA) for continuous variables.
- Paired t-tests examined within group differences from baseline to 8 weeks.
- ANOVAs compared changes from baseline to week 8 for two interventions separately with usual care.

1. Sherman, K. J., Cook, A. J., Wellman, R. D., Hawkes, R. J., Kahn, J. R., Deyo, R. A., & Cherkin, D. C. (2014). Five-Week Outcomes From a Dosing Trial of Therapeutic Massage for Chronic Neck Pain. *The Annals of Family Medicine*, 12(2), 112-120. doi:10.1370/afm.1602

RESULTS

Indiana University Institutional Review Board Protocol #1504485496 collected data from August 2016 – May 2017.

Forty-six participants enrolled, N=41 were included in analysis. Five enrollees (n=1 female) were excluded from analysis per missing data & early withdrawal.

Demographic

Demographic and baseline data for all and per group participants are included in Table 1.

- No baseline differences existed between randomization groups.
- Majority (88%) female
- Majority White (90.2%)
- Most participants reported comfortable economic status (56%) while 29% and 12% reported adequate and low economic status, respectively.

Primary Outcomes

Within group analysis indicated:

- VAS Measures
 - TrPtSc - Improved current (p=0.003), worst (p=0.007), average (p=0.009)
 - Therapist - Improved current (p=0.02), worst pain (p=0.05)
- 11-Point Measures
 - TrPtSc group only - current (p=0.02) and best (p=0.018)

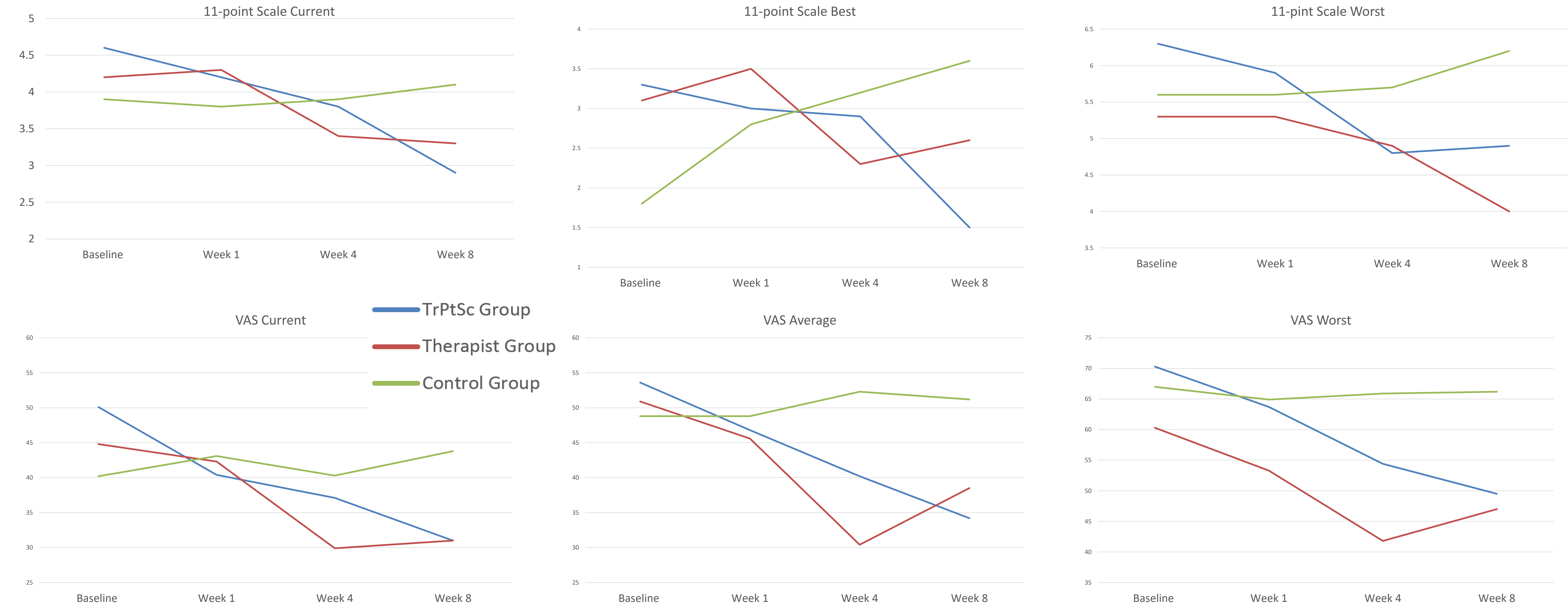
Between group analysis indicated:

- TrPtSc - Improved VAS current (p=0.029), VAS worse (p=0.049), current 11-point pain (p=0.044), and best 11-point pain(p=0.004) compared to control at week 8.
- No differences occurred from baseline to week 8 for the therapist group compared to control.
- Figure 2 graphs the change in VAS and 11-point scales. Y-axis indicates pain level with higher numbers indicating worse pain.

Table 1. Baseline demographic and participant measures

Variable	All N= 41 (%)	Self-Care Group N= 14 (%)	Therapist Group N= 15 (%)	Control Group N= 12 (%)	
Age	Mean Years (SD)	47.3 (13.5)	45.3 (14.2)	46.4 (14.2)	50.9 (11.9)
	Range Years	19 – 67	20 – 63	25 – 63	19 – 67
	Younger (under 50)	16 (61%)	7 (50%)	6 (40%)	3 (25%)
	Older (50+)	25 (36%)	7 (50%)	9 (60%)	9 (75%)
Marital Status	Couple	21 (51.2%)	7 (50%)	9 (60%)	5 (41.7%)
	Single	20 (48.8%)	7 (50%)	6 (40%)	7 (58.3%)
Hispanic/Latino Ethnicity	Yes	1 (2.5%)	0	1 (6.7%)	0
	No	40 (97.5%)	14 (100%)	14 (93.3%)	12 (100%)
Work	Employed for wage	21 (52.5%)	8 (57.1%)	5 (35.7%)	8 (66.7%)
	Self-employed	5 (12.5%)	2 (14.3%)	2 (14.3%)	1 (8.3%)
	Out of work for more than a year	3 (7.5%)	1 (7.1%)	1 (7.1%)	1 (8.3%)
	Out of work for less than a year	1 (2.5%)	1 (7.1%)	0	0
	Homemaker	1 (2.5%)	0	0	1 (8.3%)
	Student	2 (5%)	0	1 (7.1%)	1 (8.3%)
	Retired	1 (2.5%)	0	1 (7.1%)	0
	Unable to work	6 (15%)	2 (14.3%)	4 (28.6%)	0
Baseline Visual Analog Scale	Current	45.2 (22.1)	50.1 (22.7)	44.8 (24.5)	40.2 (18.4)
	Average	51.2 (22.2)	53.6 (21.5)	50.9 (26.6)	48.8 (18.4)
	Worst	65.7 (20.2)	70.3 (16.3)	60.3 (26)	67 (15.4)
Baseline 11-point Scale	Current	4.3 (2)	4.6 (1.6)	4.2 (2.6)	3.9 (1.6)
	Best	2.8 (2.2)	3.3 (2.1)	3.1 (2.4)	1.8 (1.7)
	Worst	5.7 (2)	6.3 (2)	5.3 (2.4)	5.6 (1.5)

Figure 2: Primary Outcomes Between Groups Across Time



CONCLUSIONS & FUTURE STEPS

Therapist provided massage was initially beneficial for participants but not once massage was withdrawn. Improvements in the TrPtSc group maintained at follow-up which could indicate that participants continued the self-care regimen or that the self-care approach was generally more effective. TrPtSc is a promising approach to CNP that could provide the benefits of therapist applied massage therapy with lower cost and less accessibility issues. Further research should examine TrPtSc alone and combined with therapist applied massage.

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