

Adapting and Implementing a Nurse Care Management Model to Care for Rural Patients with Chronic Pain: Results and Lessons from the Feasibility Phase

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Funding Support and Conflicts

Funding:

- **NINR/NIH HEAL Initiative (UG3NR020930)**
- **NIH Pragmatic Trials Collaboratory (U24AT009676)**
- > **UW Institute for Translational Health Sciences (UL1TR002319)**

No other conflicts to declare.



Project Collaborators

UW Team

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- > Andrew Humbert, statistician
- > Laura Mae Baldwin, co-I
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Providence Northeast Washington Medical Group:

- > Caleb Holtzer, site PI
- > Linda Fredrick, nurse care manager



Washington
Association for
Community Health



Wake Forest®
School of Medicine



Atrium Health



KLAMATH HEALTH
PARTNERSHIP



Providence



Wake Forest/Atrium Team:

- > Hazel Tapp, site PI
- > Tom Ludden
- > Erika Steinbacher
- > Kelly Reeves, nurse care manager
- > Christine O'Neill
- > Brenda Sanchez



Rationale

Chronic pain affects ~20% of U.S. adults, and closer to 30% of adults in rural areas

This disparity is, in part, explained by the concentration of older individuals and those with more physically demanding jobs

Rural residents often have less access to pain specialists and non-pharmacologic pain management approaches

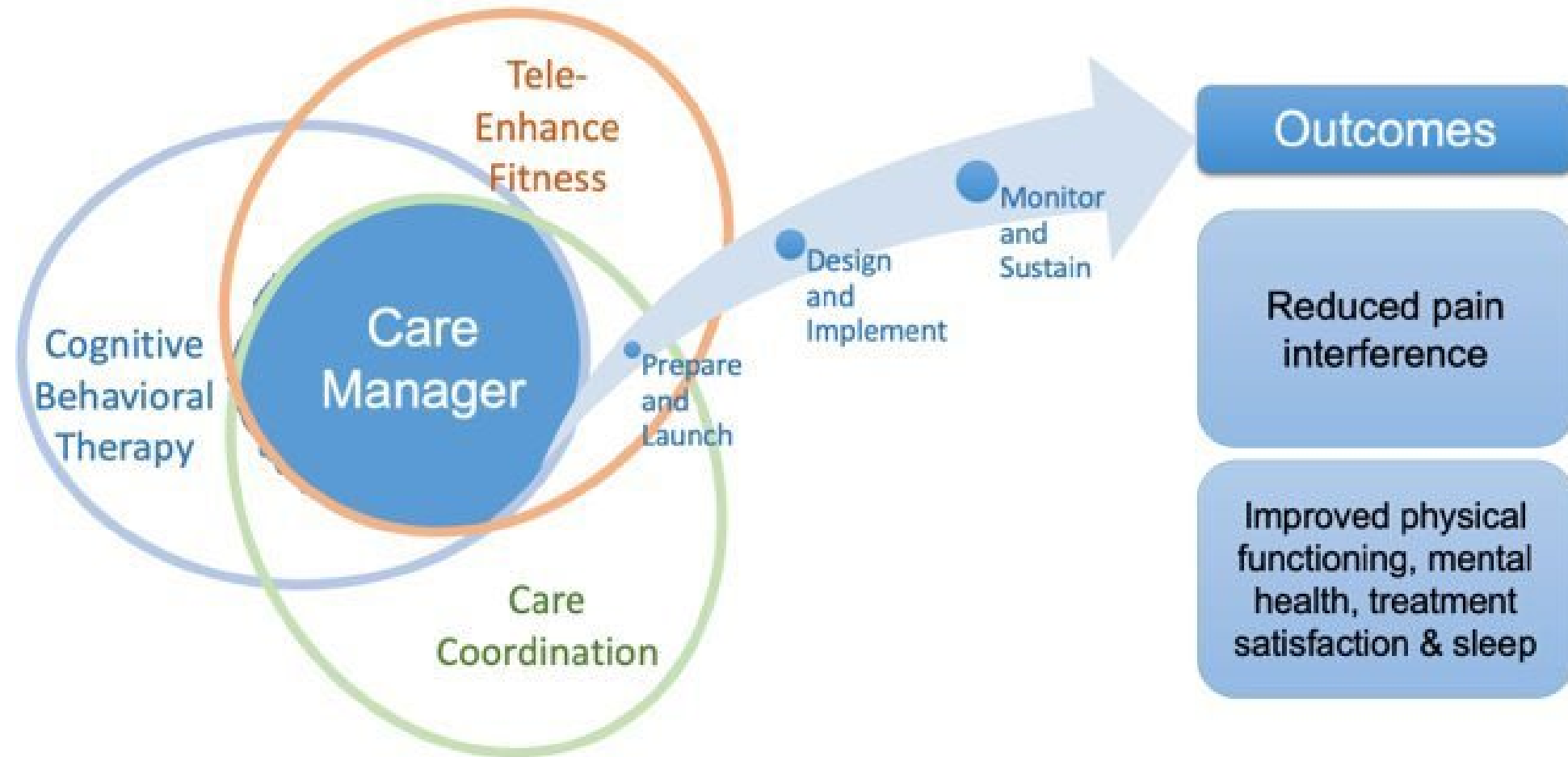


Nurse Care Management in Other Fields

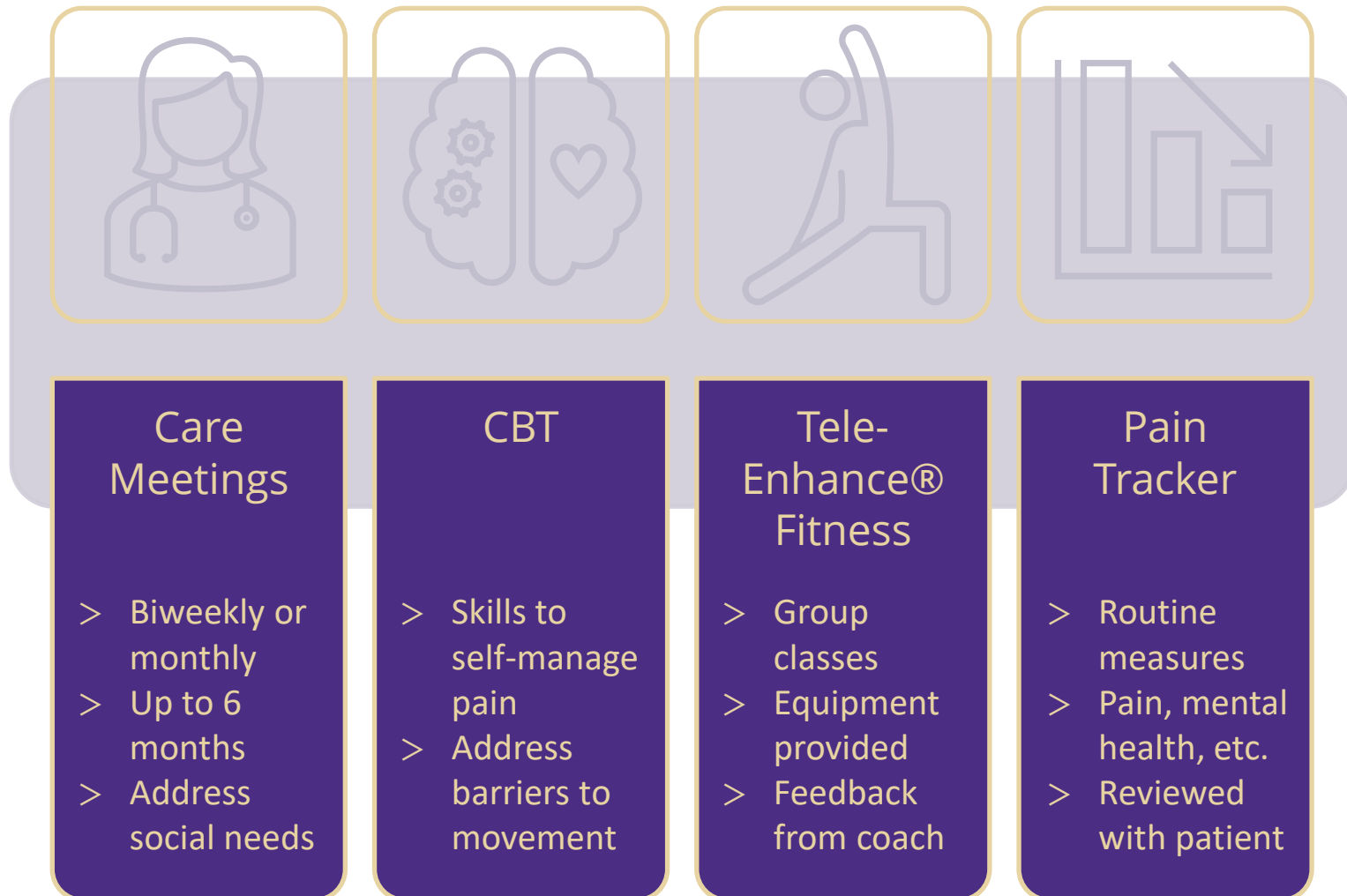
Disease Area / Population	Outcomes	Citation
Opioid Use Disorder	Increase in treatment capacity	JAMA Intern Med 2023;183:1343.
High utilizers and multimorbidity	Decrease in health care utilization (in some populations)	BMC Health Serv Res 2018;18:65
Chronic kidney disease	Improvement in symptom control, sleep, energy levels, overall health	BMC Nursing 2025;24:188
Heart Failure	Improving self-management behaviors, lowering risk of death and hospitalization	J Clin Nurs 2024;33:1295.
Diabetes	Reduction in A1c and cholesterol	Diabetes Care 2003;26:1058

Virtual Nurse Care Management (NCM)

Objective: To test and adapt a virtual NCM for chronic pain in rural primary care



What the Program Includes



NCM: 3 Steps

CBT 1-2-3

Step 1
Groundwork

Step 2
Grow

Step 3
Address Barriers

CARES

Collaborate

Assess

Reflect

Educate

Set the goal

CBT Pain Modules

Body

- Relaxation
- Sleep
- Medications

Brain

- Cognitions
- Mindfulness

Behavior

- Movement
- Pacing
- Valued activities

Mental Health



Depression

Anxiety

Trauma

Substance /
Opioid Problems

Participant Eligibility



Age 18 or older



English-speaking



Current primary care patient



Live in a rural area defined by HRSA grants analyzer



Chronic pain diagnosis, not cancer-related



Pain, Enjoyment and General Activity (PEG) ≥ 4

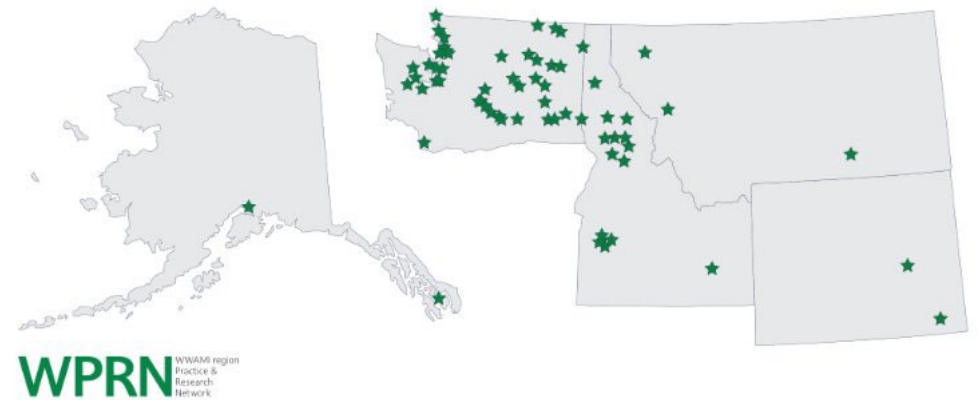


No moderate or severe cognitive impairment

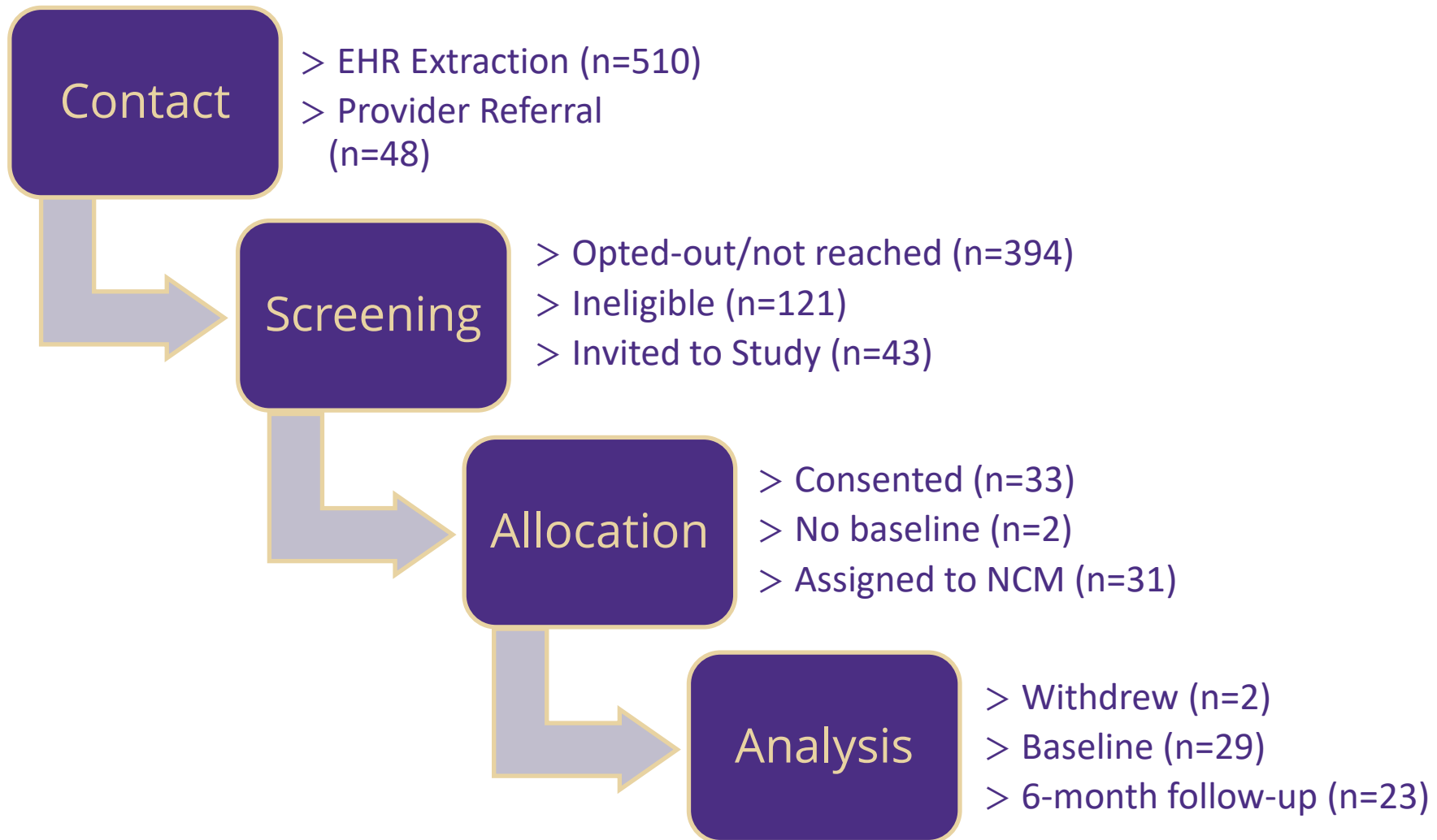


Clinical Settings



- > Mecklenburg Area Partnership for Primary Care Research (North Carolina)
- > WWAMI (Washington, Wyoming, Alaska, Montana and Idaho) region Practice and Research Network



Recruitment & Screening Approach



Data Sources & Measures

-  Patient Reported Outcomes
-  Attendance Logs
-  Clinical Notes and Checklists
-  Electronic Health Record
-  Qualitative Interviews



Participant Characteristics (n=29)

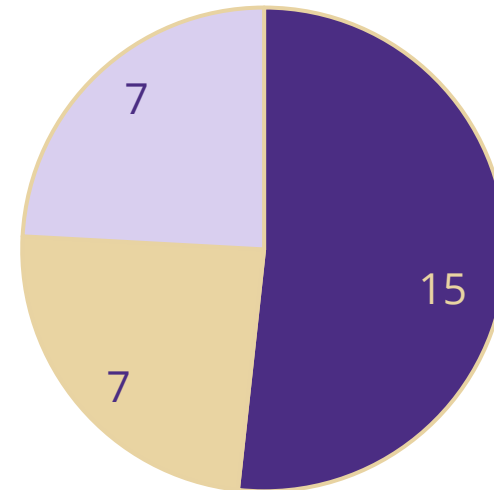
Characteristic		N (%) or Mean (SD)
Age, Mean (SD)		56.1 (11.2)
Sex (all cisgender)	Female	19 (65.5)
	Male	10 (34.5)
Employment	Part- or Full-time	4 (13.9)
	Unemployed	8 (27.6)
	Retired	5 (17.2)
	Unable to work	12 (41.3)
Household Income	<\$50k	16 (75.9)
	\$50k-\$99,999	2 (6.9)
	≥ \$100k	3 (10.3)
	Not reported	2 (6.9)
Race/Ethnicity	White	25 (86.2)
	Hispanic/Latine	1 (3.5)
	Black	1 (3.5)
	Not reported	2 (6.9)



Completion: Mostly Meeting Targets

- > Targeted ≥ 1 monthly visit for 6 months
- > 4 participants completed a final visit in month 7 due to scheduling
- > ~25% *early disengagement* needs to be addressed

Appointments Completed
(n=29)



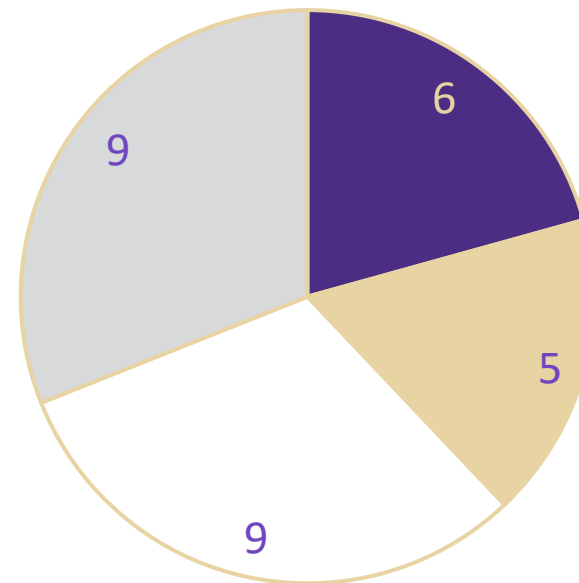
- 6 or more appts
- 2-5 appts
- Disengaged



Tele-EF: Uptake Lower than Expected

- > ~20% of participants attended classes
- > Limited counseling prior to referral
- > Misperception of the program
- > Need to strengthen *process*

Tele-EF Step Completion
(n=29)



■ Attended ■ Enrolled
□ Referred ■ Not referred

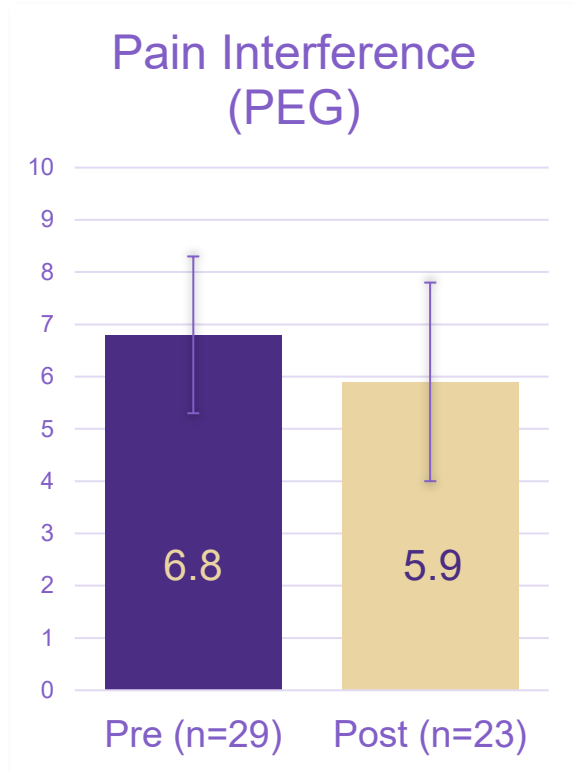


Fidelity: An Opportunity to Standardize

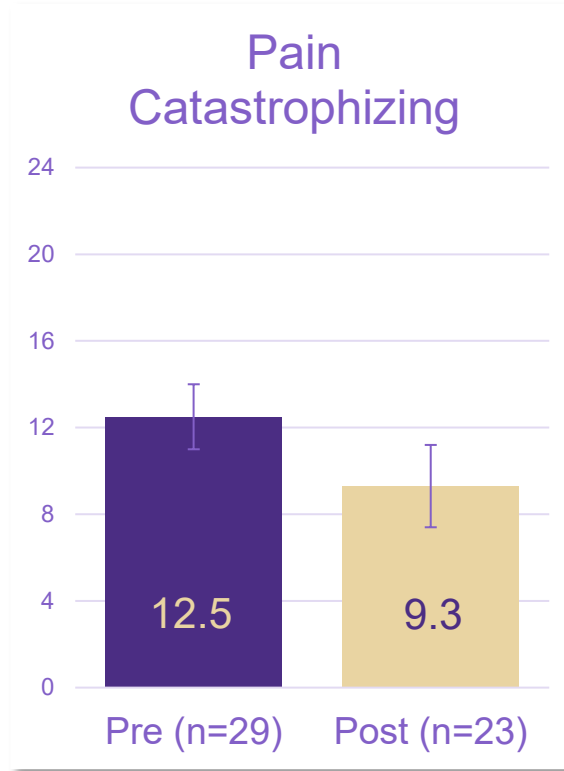
Intake Components (n=27)	N (%)
Review PainTracker with patient	19 (70.4)
Listen to pain story	27 (100.0)
Make goals and care plans	27 (100.0)
Assess/address care coordination needs	15 (55.6)
Follow-Up Components (n=22)	
Review CBT Model of Pain	21 (95.5)
Chronic Pain Psychoeducation	18 (81.8)
Movement Skills	21 (95.5)
Discussed/Offered Tele-EF	21 (95.5)
Revisit PainTracker Results	17 (77.3)
Revisit Care Coordination Needs	14 (63.6)



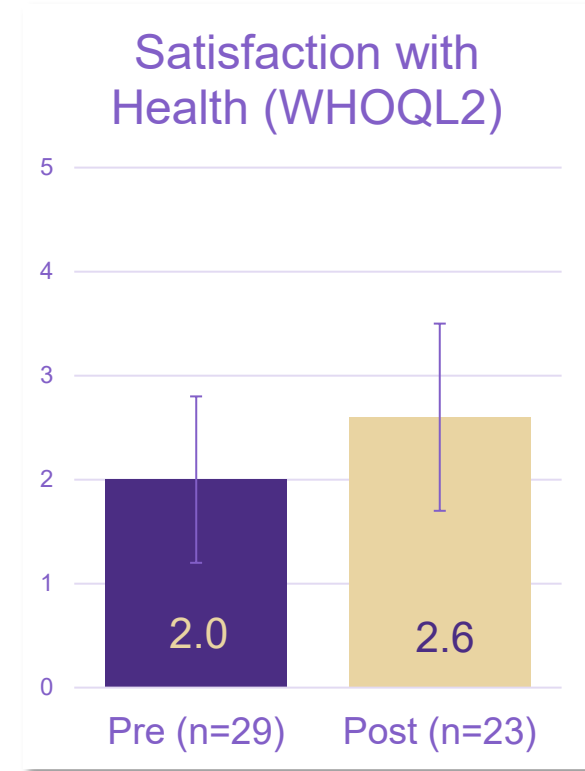
Patient-reported outcomes



d = 0.50



d = 0.62



d = 0.72



Patient-reported outcomes

Outcome	Measure	Pre Mean (SD)	Post Mean (SD)	Difference (95% CI)	Effect size (d)
Pain Interference	PEG	6.8 (1.5)	5.9 (1.9)	-0.9 (-1.7, -0.1)	0.50
Pain Catastrophizing	PCS	12.5 (4.9)	9.3 (5.0)	-3.2(-5.4,-1.0)	0.62
Depression	PHQ-9	10.1 (5.2)	9.3 (6.1)	-0.7 (-3.0, 1.6)	0.14
Anxiety	GAD-7	7.1 (5.4)	6.7 (5.0)	-0.5 (-3.0, 1.9)	0.10
Physical Function	PROMIS 6-item	14.4 (5.0)	14.4 (3.4)	0.5 (-1.3, 2.2)	0.11
Sleep Disturbance	PROMIS 6-item	20.9 (6.3)	20.0 (6.5)	-1.3 (-3.8, 1.2)	0.22
Opioid Use	MME	31.7 (7.5)	28.8 (13.1)	-2.8 (-16.7, 11.1)	0.25



Exit Interview Results – NCM Training

- Steep learning curve with an overwhelming training structure (2 half-day trainings)
- Initial concern or doubt in ability in to deliver intervention, quickly built confidence
- Ongoing psychologist support was highly valued

“.... I think that's a lot of information to pack into two days. I think if there's a way to make the training in smaller bits, so there was homework, if you will, before we got into the modules.” – NC NCM

*“At first I was pretty nervous because **I just didn't feel like I was qualified to talk to these people that have had pain for years.** And I've had all these different providers and tests and, you know, all this stuff. And then I'm just coming in going, oh, have you tried this? Have you tried that? So I kind of felt inadequate that way. But once I started talking to people, **I realized that they just really needed to talk to someone that had time to, you know, just ask them about the things that had been done and, and what they thought about those things.**” - WA*

NCM

Exit Interview Results – CBT (Content)

- NCMs and patients viewed visits as a dedicated, nonjudgemental space to discuss pain productively
- Patients valued the practical tools (i.e. breathing exercises) and both patients and NCMs requested additional resources and ‘homework’ to complete
- Goal setting and pacing were key skills for patients and helpful measures of progress

“I was able to talk to someone where I wasn't being redundant. Like my wife heard it how many times a day. Okay. Ow that hurts?it just took me to a different, um, mode, so to speak. Mentally. It just, it, ***I was able to focus on solutions rather than being part of the problem, being part of the solution, kind of.***”- Patient

“I could tell the difference at the end of the week when I get ready to go to church that uh, oh, oh gosh, I could stand up more at church. I could, I could move around more at church. I could lift my arms at church. ” – Patient

Exit Interview Results – Exercise Counseling and Referral (Content)

- NCMs regularly discussed physical activity with participants
- NCMs wanted more information about Tele-EF to answer questions and appropriately counsel patients
- Tele-EF challenges
 - Misunderstanding of Tele-EF role in the study
 - Connecting very rural participants with Tele-EF
 - Perceived intensity of the classes

“I would recommend it if people had access to, um, WiFi and, um, was, was able to connect with the exercise because I, I feel *like that would've been a point in part of the whole program, which I missed out on.*” - Patient

“*I wasn't ready*, ready for that kind of, uh, exercise plan.” – Patient

Exit Interviews Results – Care Coordination (Content)

- Varying familiarity with existing health system resources for social needs and care coordination
- Openness to discussing social needs with NCM
- Limited referrals and uptake for social needs resources

“Um, so *people tend to be really private in this county...So I was a little nervous bringing some of those things up* with people, but, um, I think people knowing that it was part of the study, I think they felt a little better about that. So I think, *I think people were pretty forthcoming*. It was me that had the, uh, kind of, you know, hesitation there.” –WA NCM

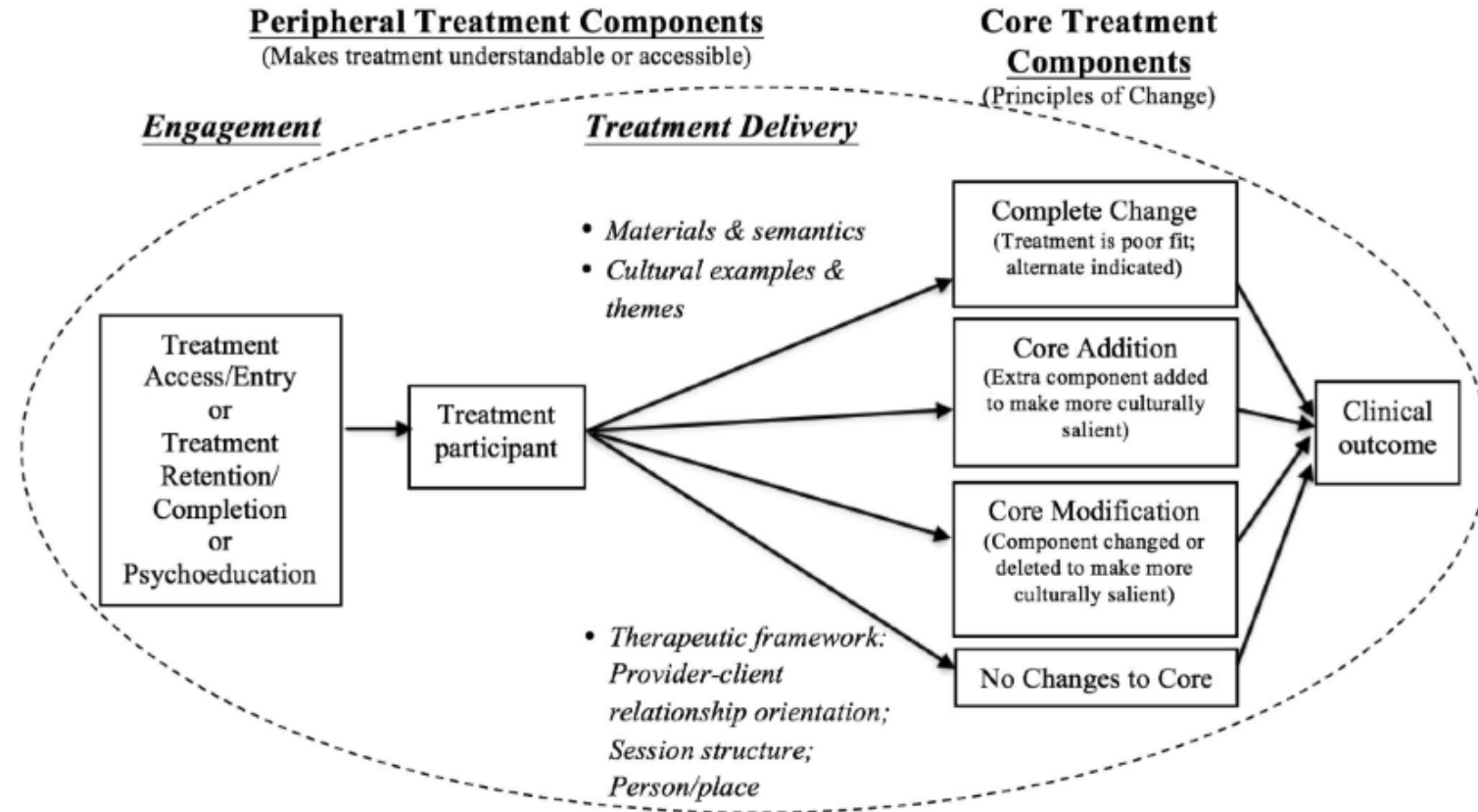
“She, she got, um, me in touch with some people at [community organization]...so I'm actually *meeting with, uh, one of their representatives, uh, early next week, and I can see if we can get me a job* of some sort that I can do that's not physically demanding.”- Patient

Cultural Adaptation Process



Community Engagement Studio

- > 8 Spanish speaking adults with chronic pain recruited through a community-based organization and health care provider
- > 3 sessions held reviewing study materials, intervention procedures (CBT, care coordination, referrals, nurse care management)
- > Analyzed using Cultural Treatment Adaptation Framework



Example from Peripheral Treatment Entry Domain

> Trust as a Foundation

- Warm handoff from trusted community organization
- Role clarity of care manager (credentials, fluency in Spanish)
- Visual representation in materials
- Privacy transparency -> plain and culturally appropriate language to describe how language will be used



Key Adaptations for Scale-Up

- > Establish clinic learning collaborative to share learnings, harmonize implementation and plan for sustainability
- > Refine training to optimize pacing content and practice
- > Specify site-specific care coordination activities, roles and performance thresholds to improve fidelity
- > Provide more take-home CBT worksheets and exercise options that do not require internet for participants



Key Adaptations for Scale-Up

- > Implement flexibility around who can serve as care manager
- > Change in sample size to account for intergroup treatment effects
- > Provide asynchronous support (administrative) for care managers
- > Develop SOPs to standardize operations around safety, recruitment, care coordination procedures, communication with clinic staff



Next Steps for Testing



Currently onboarding 3 additional sites



Established learning collaborative



Refined and executing training



RCT with 450 participants



Questions?

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