



Northwestern University Feinberg School of Medicine

Randomized Trial of Intensive Telephone Education and Counseling to Overcome Disparities in Knowledge, Self-Care Behaviors and Symptom Severity for Patients with Heart Failure and Low Health Literacy

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Background

Heart Failure

Heart failure (HF) is a condition in which the heart does not pump blood adequately

Fluid retention, shortness of breath, fatigue

Frequent hospitalizations, death

Patients with low literacy at increased risk



Self-Care Education in HF

Patients with HF need to learn self-care

Low salt diet, self-monitoring, action plan, exercise

The “dose” of education required for most patients to master self-care behaviors unclear

Most patients need repetition to learn key points and reinforcement to remember them

Health literacy may be a barrier to learning

Vocabulary, low baseline knowledge

Most studies have not measured health literacy



Study Objectives

To conduct a multi-site randomized trial to examine the effect of two different levels of intensity of education and self-care training on knowledge, self-efficacy, self-care behaviors, and HF-related quality of life (HF-QOL)

Single 40 minute education session

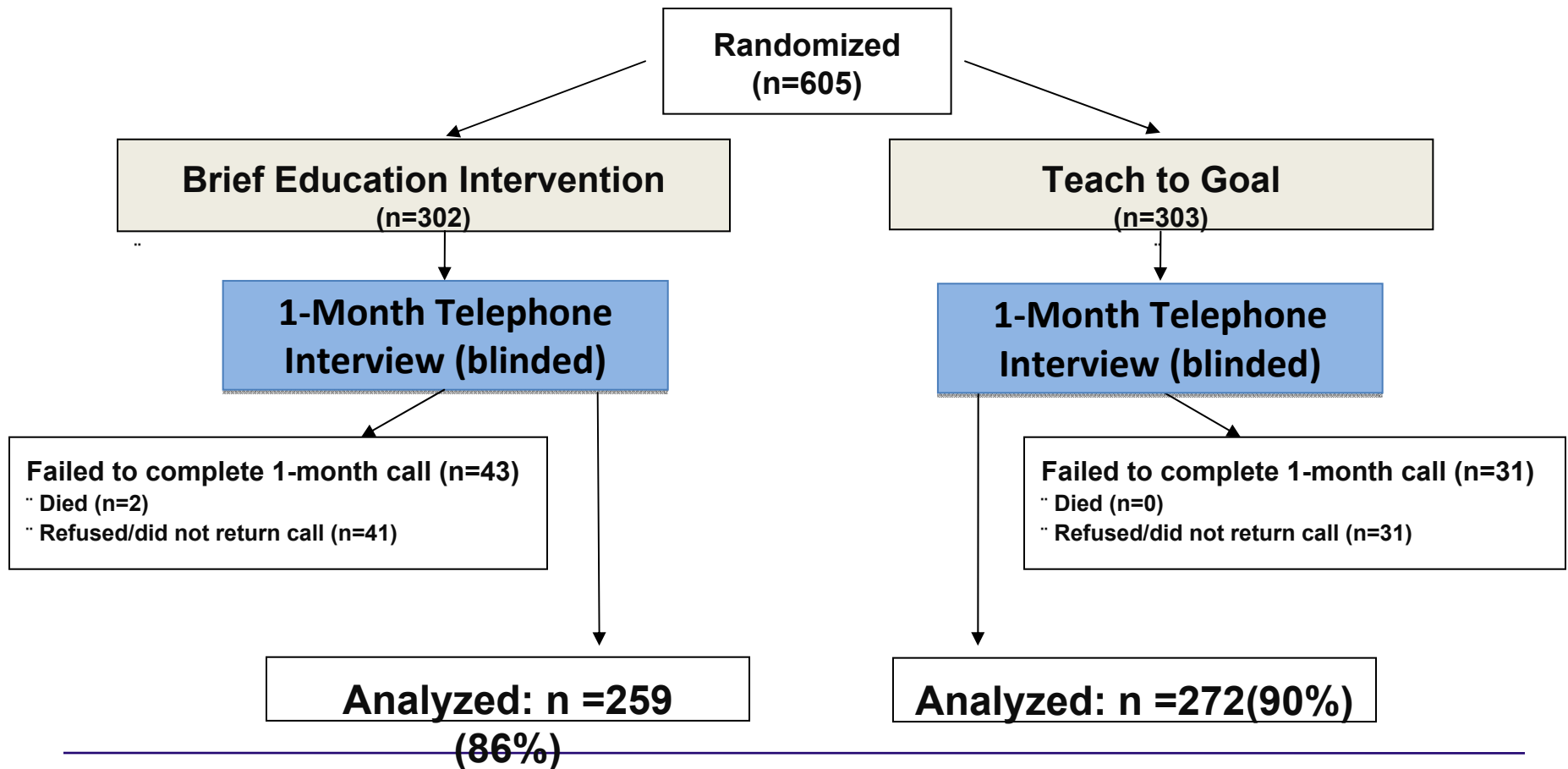
Single session plus series of phone calls designed to reinforce learning and behavioral goals

To examine whether the effects of these different levels of intensity of education varied by patients' health literacy

Study Design



- 4 Academic Medical Centers
- Recruited from GIM and Cardiology Clinics
- Clinical HF, symptoms in last 6 months



Single educational session (~ 40 minutes)

Medication adherence; salt avoidance; exercise; daily self-check; and action planning in case of exacerbation

Caring for Your Heart: Living Well with Heart Failure

Given a new digital scale

Randomization

Brief Education Intervention (BEI)

No further intervention

Teach to Goal (TTG)

Taught to adjust dose of diuretic to maintain target weight

5-8 calls over the next month to reinforce key learning goals



Study Measures

General HF knowledge (8 items)

“Someone with HF should weigh himself or herself..”

Salt knowledge (10 items)

“Nutrition labels show how much sodium there is per serving. What is the "safe" number?”

Self-efficacy (10 items)

“How sure are you that you can tell when your heart failure is getting worse?”



Study Measures (cont)

Self-care behaviors (10 items)

“How often do you weigh yourself?”

HF-QOL – *HF Symptom Scale** (7 items)

“How much of the time did your heart failure stop you from doing the things you wanted to do because you were short of breath?”

Baker DW, et al. J Cardiac Failure 2004



Statistical Analyses

Net difference in change between BEI and TTG groups

T-tests for independent samples

Repeated analyses stratified by literacy

Short TOFHLA at baseline

Adequate vs. marginal/inadequate

Baseline Characteristics



	Brief Educational Intervention (N=302)	Teach to Goal (N=303)	P
Age, mean \pm SD	60.3 \pm 12.3	61.1 \pm 13.8	0.49
Race/Ethnicity, N (%)			0.73
White, non-Hispanic	122 (40)	111 (37)	
Hispanic	43 (14)	54 (18)	
African American	114 (38)	118 (39)	
Other/ Missing	23 (7)	19 (6)	
Male, N (%)	156 (52)	158 (52)	0.90
Language: English, N (%)	261 (88)	261 (87)	0.67
Literacy, mean TOFHLA \pm SD	24.5 \pm 12.4	24.0 \pm 12.2	0.63
NYHA Class, N (%)			0.89
I	60 (20)	54 (18)	
II	152 (50)	152 (50)	
III/IV	90 (30)	97 (32)	

Participants with Inadequate Literacy Had Lower Baseline Knowledge & Self-Efficacy



	Baseline		Absolute Change: Baseline to Follow-Up		Net Difference in Change Between Groups		p
	BEI	TTG	BEI	TTG			
General Knowledge (8 items)							
Overall	6.3	6.1	+0.30	+0.70	0.40	(0.11, 0.69)	0.008
Inadequate	5.5	5.4	+0.32	+0.80	0.48	(-0.13, 1.09)	0.12
Adequate	6.6	6.5	+0.29	+0.65	0.35	(0.04, 0.67)	0.03
Salt Knowledge (10 items)							
Overall	7.7	7.4	+0.37	+0.90	0.52	(0.26, 0.79)	<0.001
Inadequate	7.3	6.8	+0.12	+0.71	0.59	(0.04, 1.15)	0.04
Adequate	7.9	7.7	+0.50	+0.99	0.50	(0.21, 0.78)	0.001
Self-Efficacy (10 items)							
Overall	5.0	4.8	+0.38	+1.01	0.63	(0.16, 1.10)	0.009
Inadequate	4.8	4.3	+0.19	+0.90	0.71	(-0.20, 1.63)	0.13
Adequate	5.1	5.0	+0.47	+1.06	0.59	(0.05, 1.14)	0.03



Knowledge and Self-Efficacy Improved More in the TTG Group

	Baseline		Absolute Change: Baseline to Follow-Up		Net Difference in Change Between Groups		p
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Knowledge and Self-Efficacy Improved More in the TTG Group for Both Inadequate and Adequate Literacy

	Baseline		Absolute Change: Baseline to Follow-Up		Net Difference in Change Between Groups		p
	BEI	TTG	BEI	TTG			
General Knowledge (8 items)							
Overall	6.3	6.1	+0.30	+0.70	0.40	(0.11, 0.69)	0.008
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Adequate	5.1	5.0	+0.47	+1.06	0.59	(0.05, 1.14)	0.03

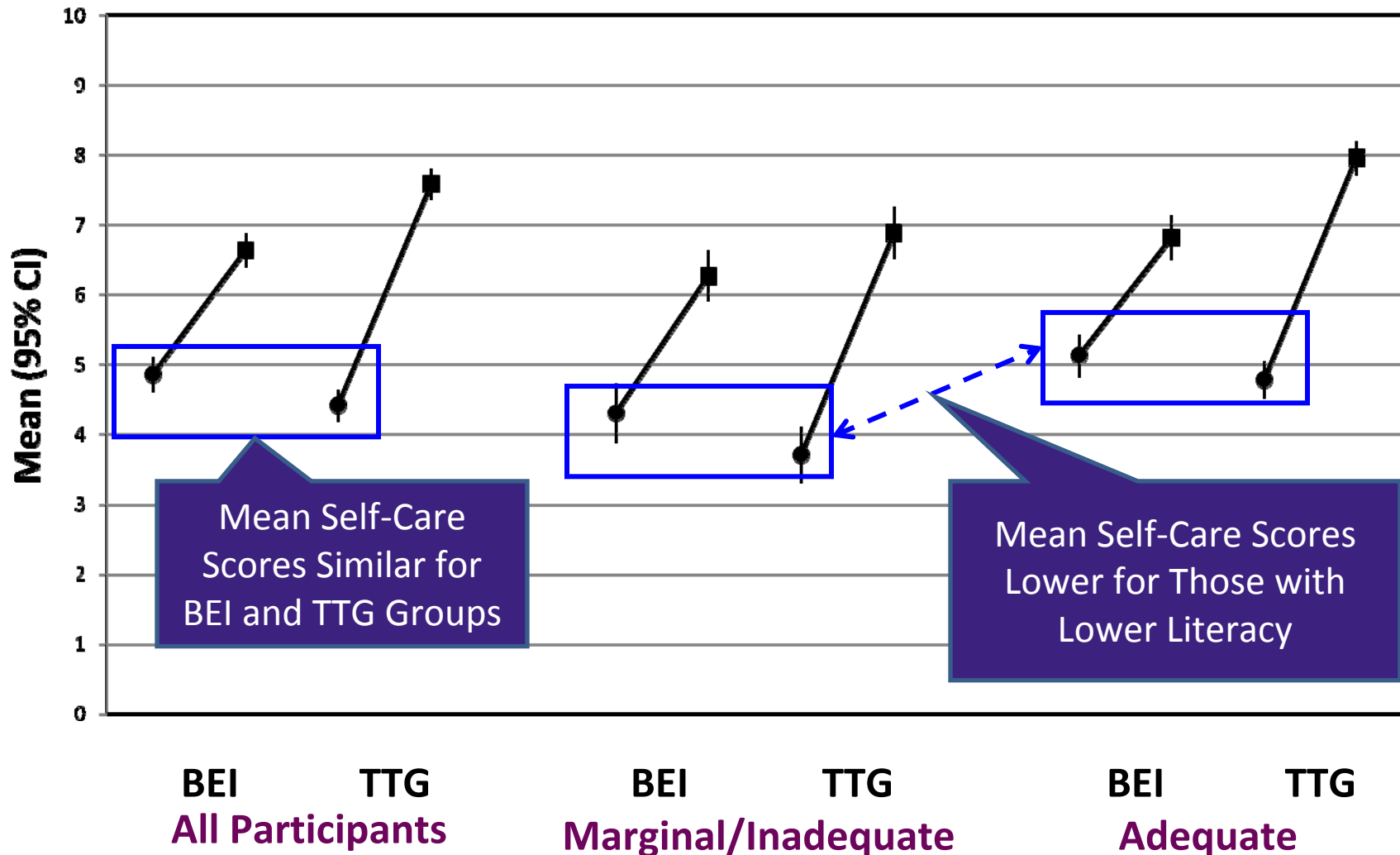


At the One-Month Follow-Up, Knowledge and Self-Efficacy Remained Lower for Those with Inadequate vs Adequate Literacy

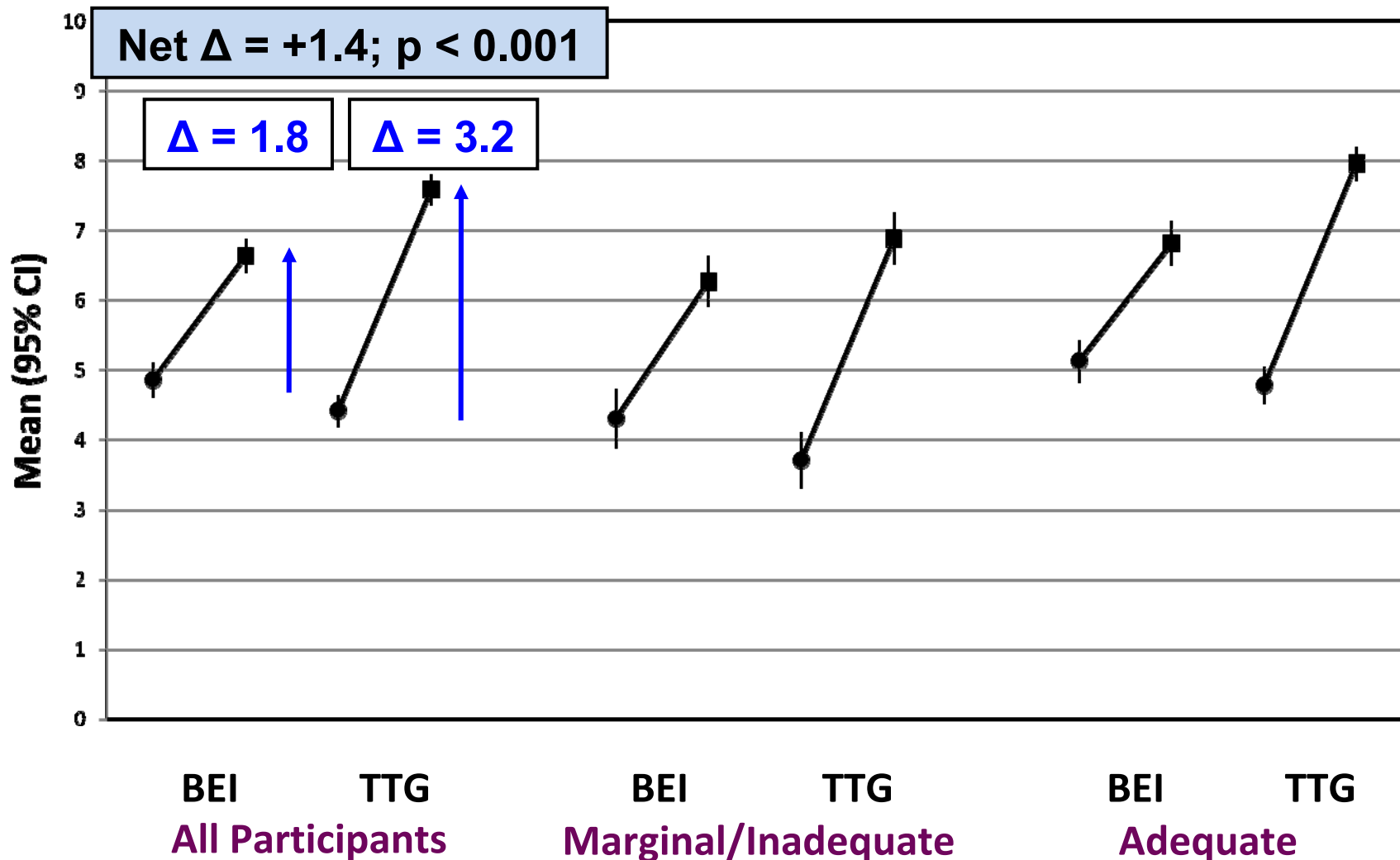
	Follow-Up	
	BEI	TTG
General Knowledge (8 items)		
Inadequate	5.9	6.2
Adequate	6.9	7.1
Salt Knowledge (10 items)		
Inadequate	7.4	7.5
Adequate	8.4	8.7
Self-Efficacy (10 items)		
Inadequate	5.0	5.2
Adequate	5.6	6.1

Changes in Mean Self-Care Scores

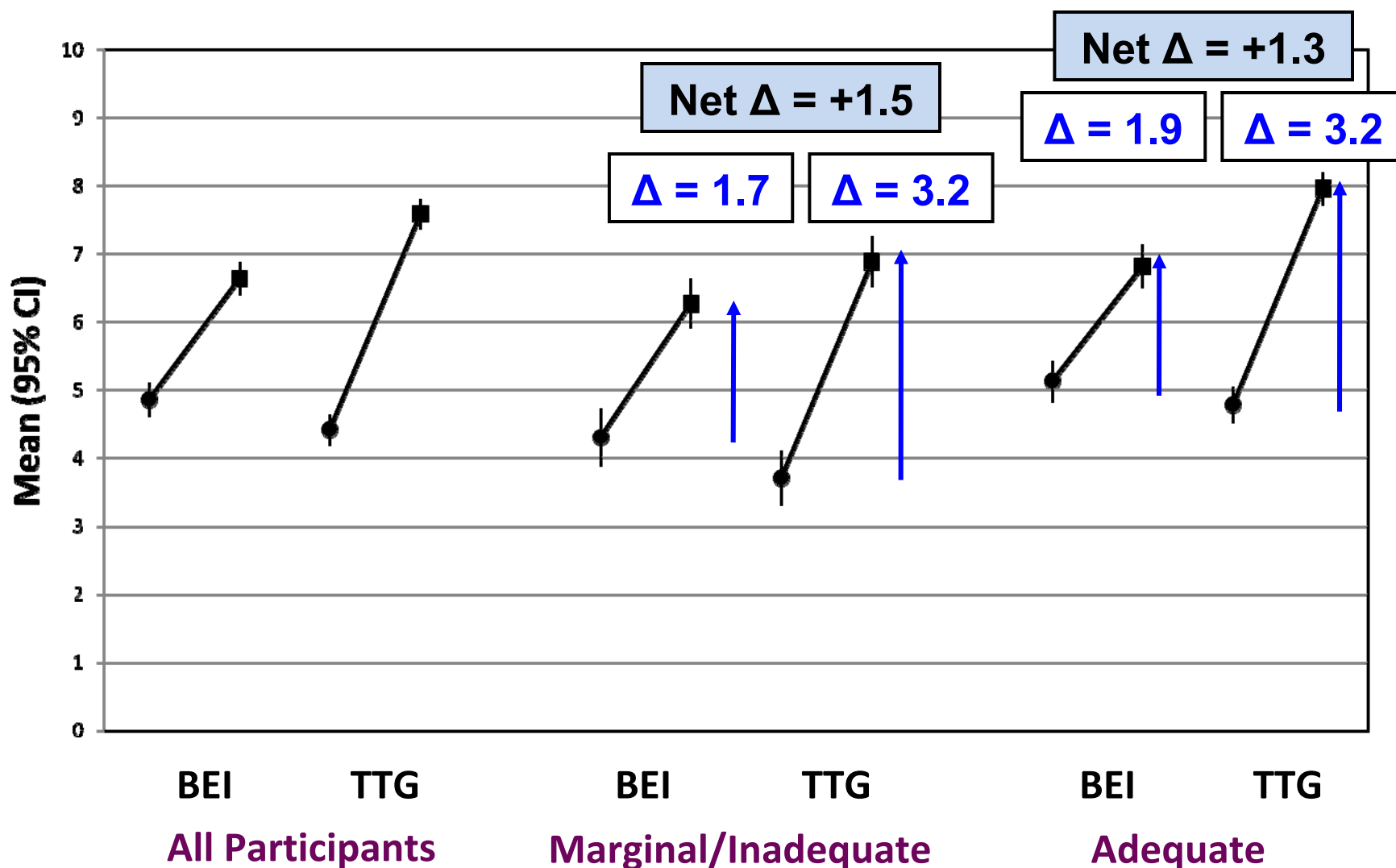
Baseline (●) and One-Month Follow-Up (■)



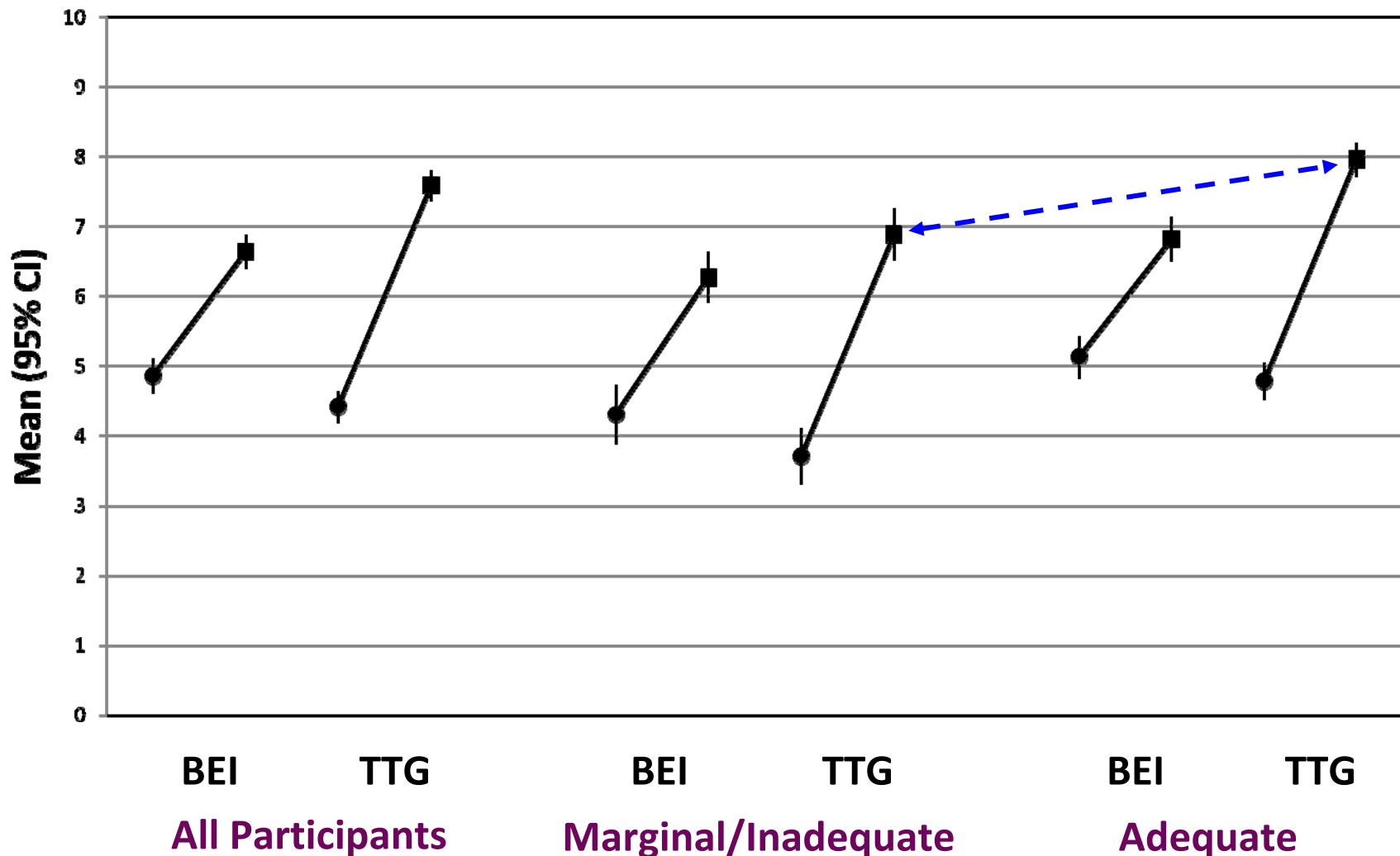
Self-Care Scores Improved More in the TTG Group than the BEI Group



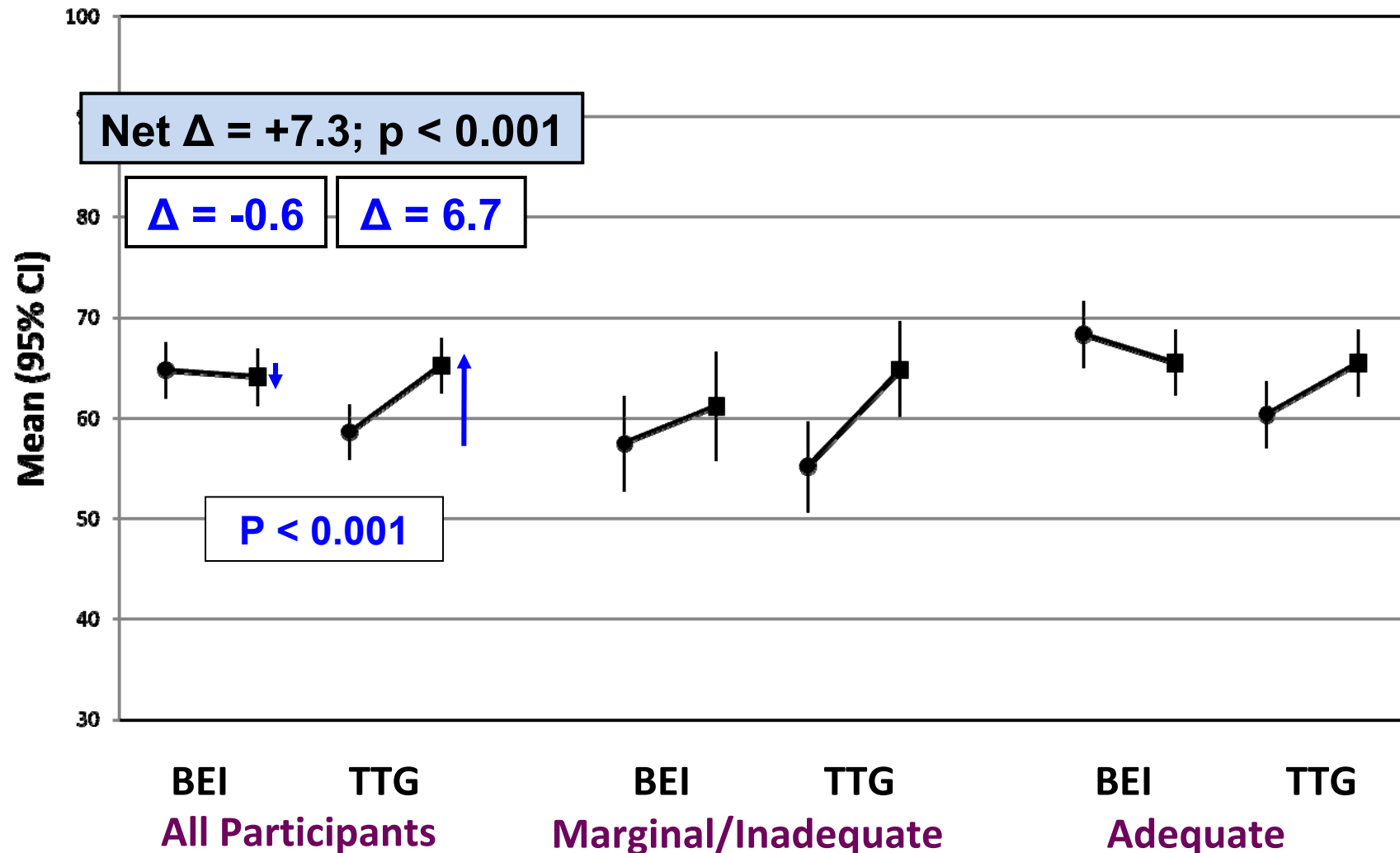
Change in Self-Care and the Advantage of TTG Similar for Literacy Subgroups



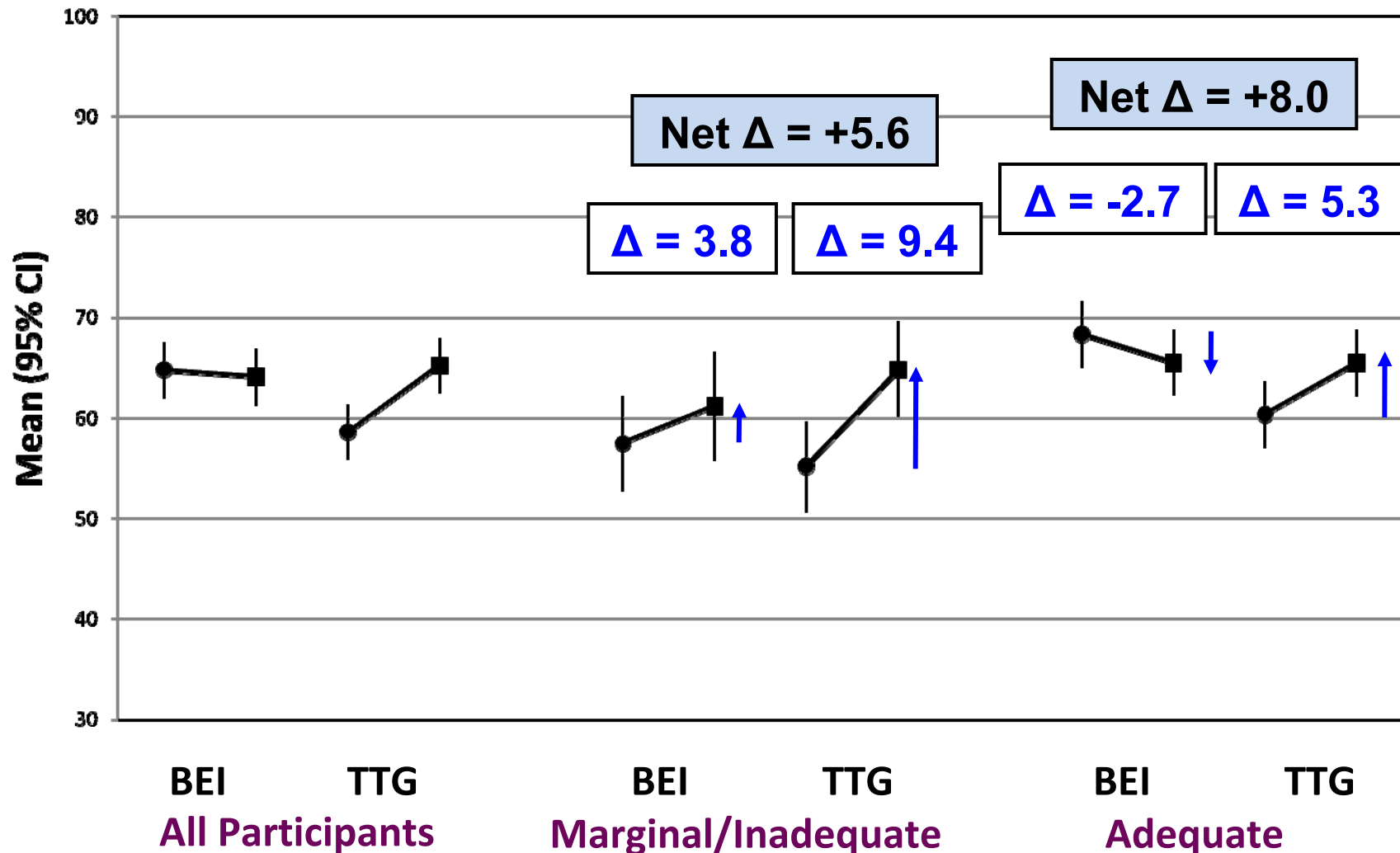
At Follow-Up, Self-Care Scores Remained Lower for Patients with Marginal/Inadequate Literacy Compared to Adequate Literacy



HF-QOL Improved for those in the TTG Group but not for those in the BEI Group



Relative Benefits of TTG Similar for those with Inadequate & Adequate Literacy





Conclusions

The TTG strategy of progressive, reinforcing telephone education and counseling improved knowledge, self efficacy, self-care, and HF-QOL more than a single education session (BEI)

The TTG strategy was superior regardless of patients' literacy level

However, the TTG intervention did not narrow the disparities in knowledge and self-care behaviors that existed by literacy at baseline



Limitations

Conducted at four academic medical centers

Generalizability unclear

Short-term follow up

Do not know if improvements/differences will be sustained



Future Directions

Determine whether changes and differences seen at 1 month are sustained with longer follow up

Examine differences in hospitalization rates

Examine pathways (mediators) by which the intervention improved quality of life

Thanks to Our Study Team



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Michael Pignone (PI)
Darren A DeWalt
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Kim Broucksou

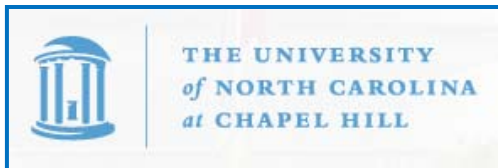
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