



US Department of Veterans Affairs

Telerehabilitation for combat wounded with Traumatic Brain Injury and Post Traumatic Stress Disorders

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Objectives



1. Evaluate the efficacy of telerehab for care coordination.
2. Monitor physical and mental health outcomes.
3. Determine if telerehab is cost effective.
4. Capture patient satisfaction with telerehab for combat trauma.

Study Design



- 36 month design with a convenience sample of 75 OEF/OIF returnees.
- quantitative analysis of
 - Health outcomes, utilization, cost
- qualitative analysis of
 - veterans' perceptions of telerehab
 - Facilitators and barriers to implementing telerehabilitation

Inclusionary criterion



- Returnees from Iraq and Afghanistan with a clinical diagnosis of mild/moderate TBI.
- Use the James Haley Veterans Hospital as primary source of care
- Will benefit from the program
- Not institutionalized or psychotic.

Telerehab Intervention



- Full time interventionist (ARNP)
- MD's: primary care and specialists
- Psychologist
- Computer based
 - Internet: Secure VA server
 - Individual dialogues
 - Asynchronous chat
 - Text alerts

Telerehab intervention



Care coordination

- a) Scheduling appointments
- b) Pain management
- c) Drug therapy
- d) Substance abuse
- e) Counseling
- f) Behavior modification

Monitoring Health Status



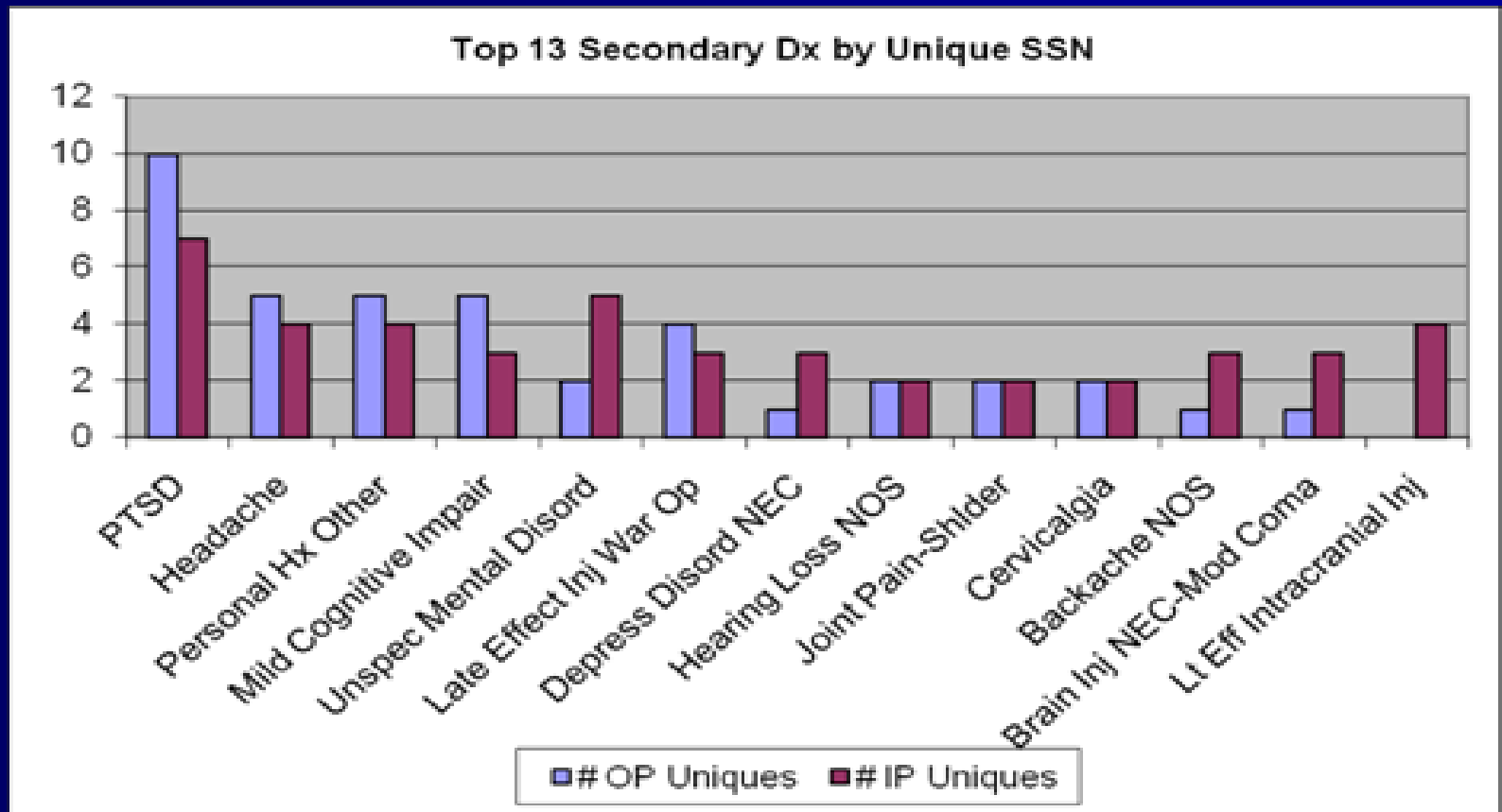
- Activities of daily living
- Cognition
- Integration into society
- Psychosocial status
- Depression
- Musculoskeletal disorders
- Adverse events

Instruments



- Functional Independence Measures
- Craig Handicap Assessment and Reporting Technique (CHART)
- Patient Competency Rating Scale
- Beck Depression Inventory
- Modified PTSD Symptom Scale
- Alcohol Use Disorders Identification
- Medical Outcomes Social Support Survey

Major Co-morbidities



Statistical Analysis



Instrument (Variable)	Statistic/Methodology
FIM ,CHART, PCRS	Linear Latent Growth modeling
VA utilization (Inpatient, Outpatient)	Poisson regression (visits) / repeated measures ANCOVA (ALOS,LOS)
VA Cost	t-tests / Mann-Whitney
Patient Satisfaction	Wilcoxon Signed Rank Test

Veteran Demographics



N=75

Gender	TBI Cohort		TBI/PTSD Cohort	
	N	%	N	%
Female	3	4.0%	0	0.0%
Male	58	77.3%	14	18.7%

Race/Ethnicity

Black	4	5.3%	0	0.0%
Hispanic	15	20.0%	4	5.3%
Native Hawaiian	1	1.3%	1	1.3%
Unanswered	2	2.7%	1	1.3%
White	39	52.0%	8	10.7%

Age

18-29	30	40.0%	3	4.0%
30-39	18	24.0%	3	4.0%
40-49	10	13.3%	6	8.0%
50+	3	4.0%	2	2.7%

Linear Latent growth curve models

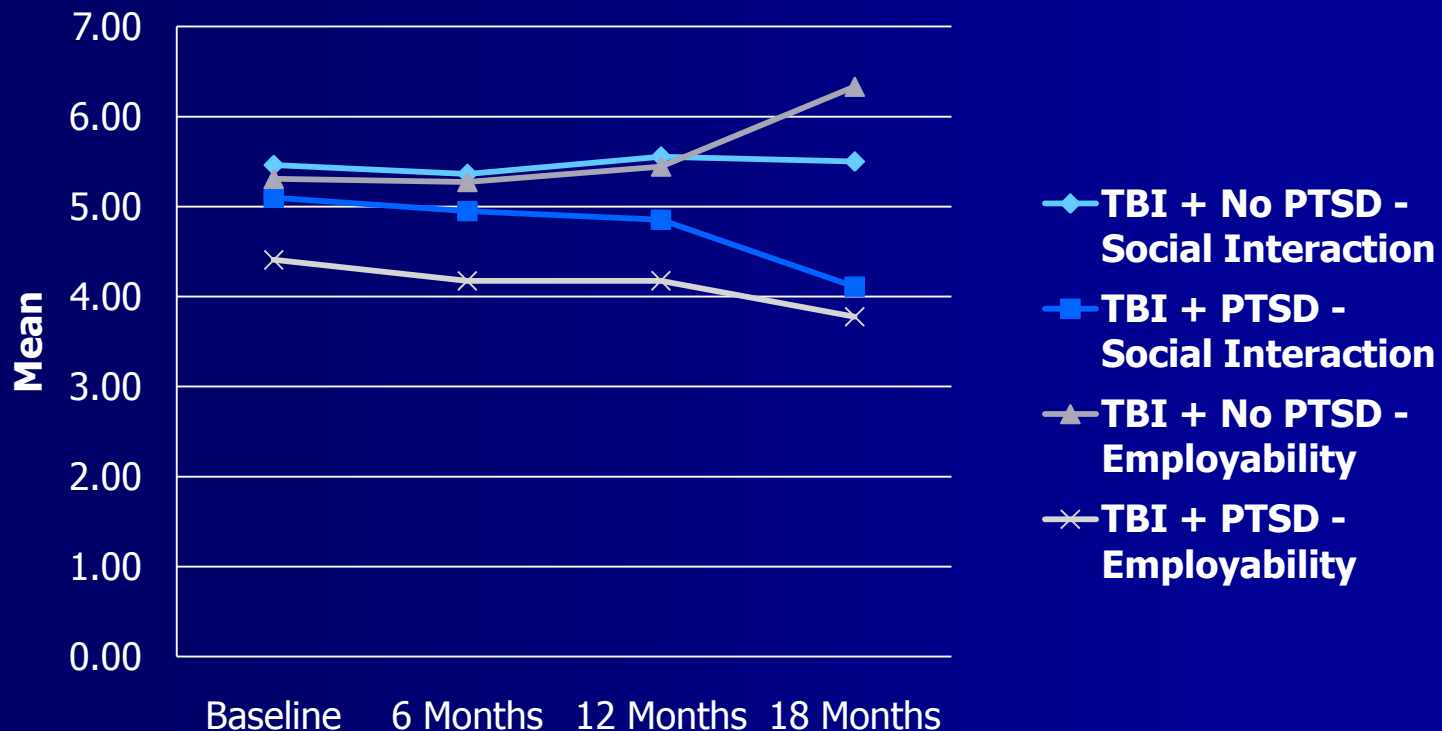


- Dependent Variables: subscales
 - Craig Handicap Assessment and Reporting Technique
 - Patient Competency Rating Scale
 - FIM + FAM
- Adjusted for age, % service connected disability, marriage status, PTSD and interaction terms.

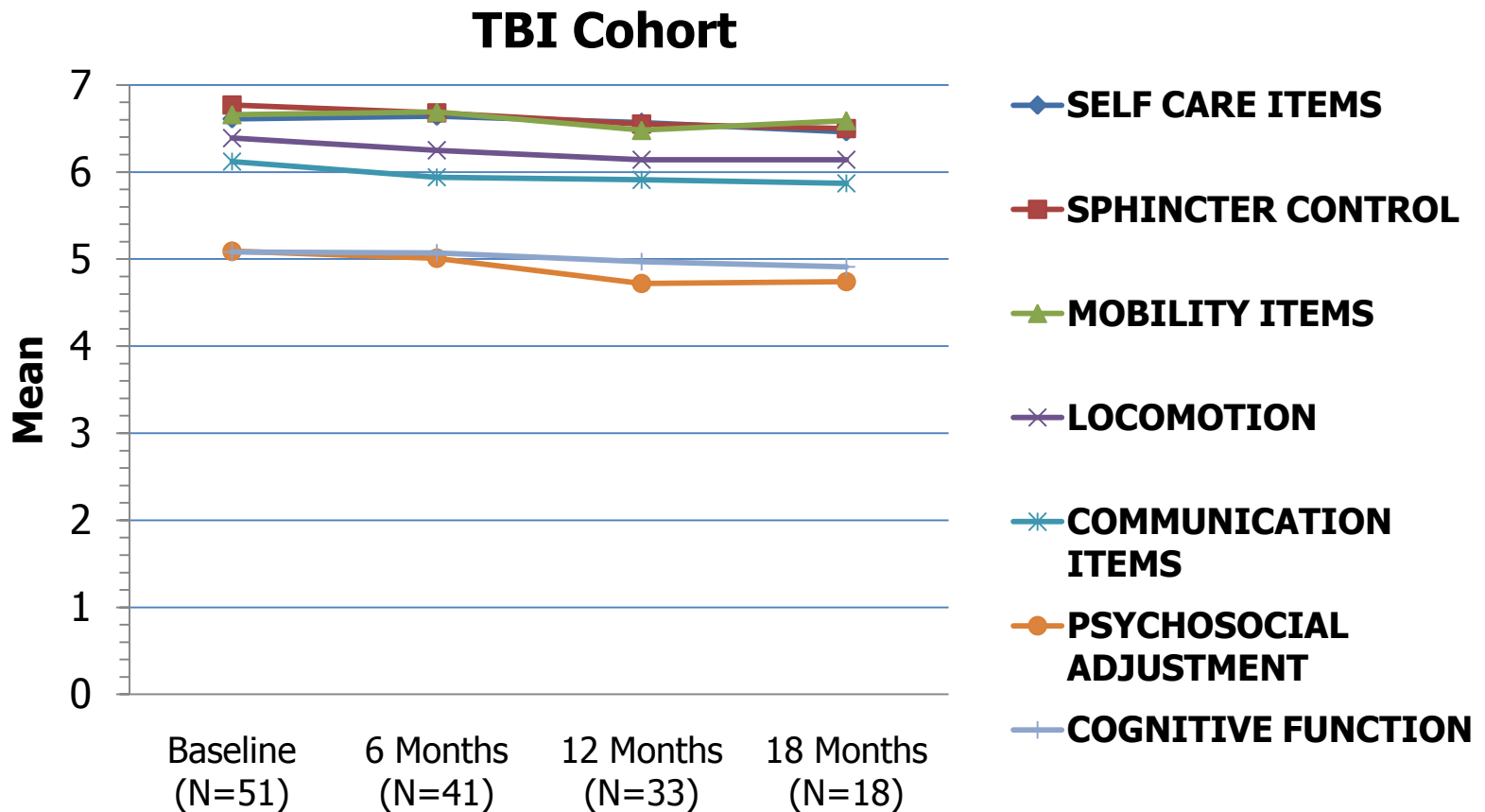
Psychosocial Adjustment Measures: TBI + No PTSD v. TBI + PTSD



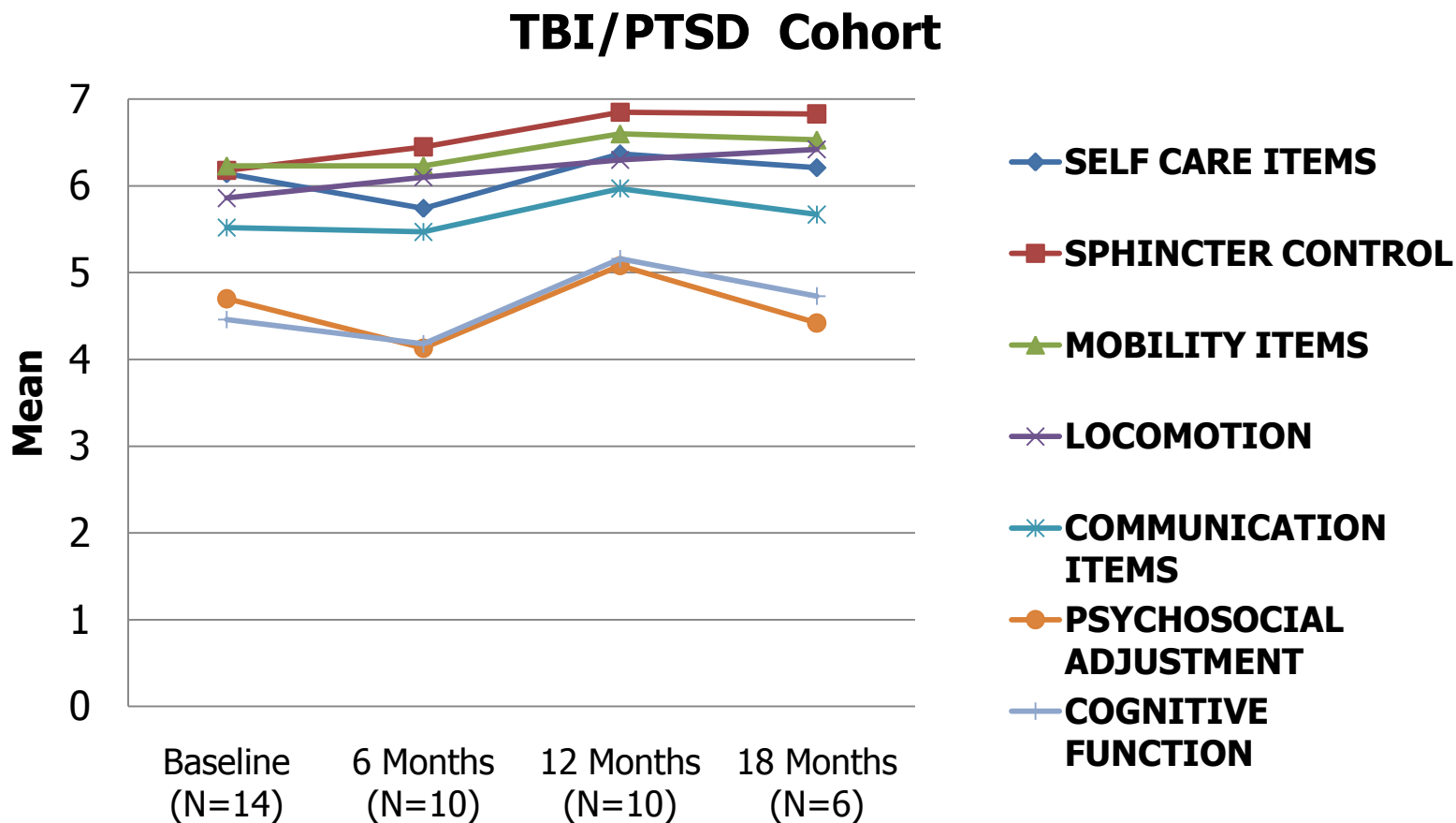
Psychosocial Adjustment Measures: TBI + No PTSD v. TBI + PTSD



FIM/FAM Domain Means



FIM/FAM Domain Means



Results



- PTSD significant predictor in
 - CHART
 - Social integration
 - Mobility
 - Physical independence
 - FIM + FAM
 - Cognitive function
 - Communication items
 - Psychological adjustment
 - Mobility

Summary of Findings



- Physical Symptoms (locomotion, mobility) have stabilized
- Problem areas
 - Cognition (memory, problem solving)
 - Psychosocial adjustment (anger, emotional status)
 - Integrating into society
 - Suicidal tendencies

Conclusions



- Individualized treatment pathways needed.
- Alcohol and substance abuse complicates treatment.
- Fragmented care delays recovery.
- Veterans are appreciative of the program.



Questions ?