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# Predicting Caregiver Burden Over the First 4 Months After TBI in Latin America: A Multi-site, Multi-Country Study



Mickeal Pugh, Jr.<sup>1</sup>, Paul B. Perrin<sup>1</sup>, Yaneth Rodriguez<sup>2</sup>, Silvia Olivera<sup>3</sup>, Maria Cristina Quijano<sup>4</sup>, & Juan Carlos Arango-Lasprilla<sup>5,6,7</sup>

## Introduction

- Research has documented the needs of caregivers of individuals with traumatic brain injury (TBI) and those with TBI in the United States, but almost no research has examined these populations in low- and middle-income regions, such as Latin America.
- Literature has suggested that some of the key features of TBI are cognitive impairment, depression, and social disadaptation (Deloche, Dellatolas, & Christensen, 2000).
- These features of TBI may predict caregiver burden longitudinally during the first few months after hospital discharge from TBI in Latin America.

## Study Aims

- The objective of the current study was to evaluate how cognitive impairment, depression, and social disadaptation after TBI predict caregiver burden longitudinally before and during the first four months after hospital discharge from TBI across three clinics in Colombia and Mexico.

## Method

### Participants

- 109 TBI caregivers ( $M_{age} = 41.56$ ;  $SD = 13.85$ ; 89 women)
- Mexico City, Mexico: 68; Cali, Colombia: 21; Neiva, Colombia: 20)

### Main Outcomes Measures:

- Caregiver burden: Zarit Burden Inventory
- Patient functioning: cognitive/executive, depression, and social disadaptation European Brain Injury Questionnaire (EBIQ)
- Demographics (e.g., Age, Education, Gender)

## Method (Cont.)

### Procedure:

- Medical centers provided a recruitment pool for the study and caregivers consented to participate.
- Inclusion criteria: primary caregiver for a person with a formal diagnosis of TBI,  $\geq 18$  at enrollment, and able to read and write in Spanish.

### Data Analysis:

- Hierarchical linear modeling (HLM) was used to examine baseline impairment predictors of caregiver burden trajectories across baseline, 2 months, and 4 months.

## Results

- All study variables were normally distributed
- A significant effect of time suggested that caregiver burden decreased across the baseline, 2-month, and 4-month follow ups.
- Sex and social disadaptation yielded statistically significant effects on participants' burden trajectories (Table 1).
- Men had higher burden scores across the three time points compared to women ( $p = .004$ ; Figure 1).
- Caregivers with  $\geq 16$  reported social disadaptation at baseline had higher burden across over time compared those with  $< 16$  social disadaptation (EBIQ; Figure 2).
- Follow-up interaction analyses suggested that neither main effect changed differentially over time (Table 2).

Table 1. Predictors of caregiver burden at baseline, 2, and 4-months post TBI

Predictor Variable	b-weight	Std. Error	df	t	p-value	95% Confidence Interval	
						Lower	Upper
Intercept	34.62	3.02	164.59	11.47	***.000	28.66	40.58
Time	-2.65	0.67	216.37	-3.95	***.000	-3.98	-1.33
Age	0.03	0.09	172.87	0.36	.722	-0.15	0.22
Sex	-9.32	3.17	170.98	-2.94	** .004	-15.58	-3.07
Education	0.27	0.55	114.90	0.49	.627	-0.82	1.36
Cognitive	0.56	0.32	127.37	1.75	.083	-0.07	1.20
Depression	0.12	0.45	130.01	0.26	.798	-0.77	1.00
Social Disadaptation	0.66	0.31	146.98	2.12	*.036	0.04	1.27

\*Note. Values represent unstandardized b-weights. \* =  $p < .05$ , \*\* =  $p < .01$ , \*\*\* =  $p < .001$

## Results (Cont.)

Table 2. Predictors of caregiver burden at baseline, 2, and 4-months post TBI

Predictor Variable	b-weight	Std. Error	df	t	p-value	95% Confidence Interval	
						Lower	Upper
Time	-2.07	1.53	216.11	-1.35	.179	-5.09	0.96
Age	0.03	0.09	178.60	0.27	.786	-0.16	0.21
Sex	-9.44	3.64	254.84	-2.59	*.010	-16.61	-2.27
Education	0.15	0.56	121.40	0.26	.792	-0.96	1.25
Social Disadaptation	1.22	0.27	241.91	4.49	***.000	0.68	1.75
Time*Sex	-0.75	1.70	216.28	-0.44	.658	-4.11	2.60
Time*Socia Disadaptation	-0.21	0.13	217.90	-1.62	.107	-0.46	0.04

\*Note. Values represent unstandardized b-weights. \* =  $p < .05$ , \*\* =  $p < .01$ , \*\*\* =  $p < .001$

Figure 1. Trajectories of caregiver burden across sex.

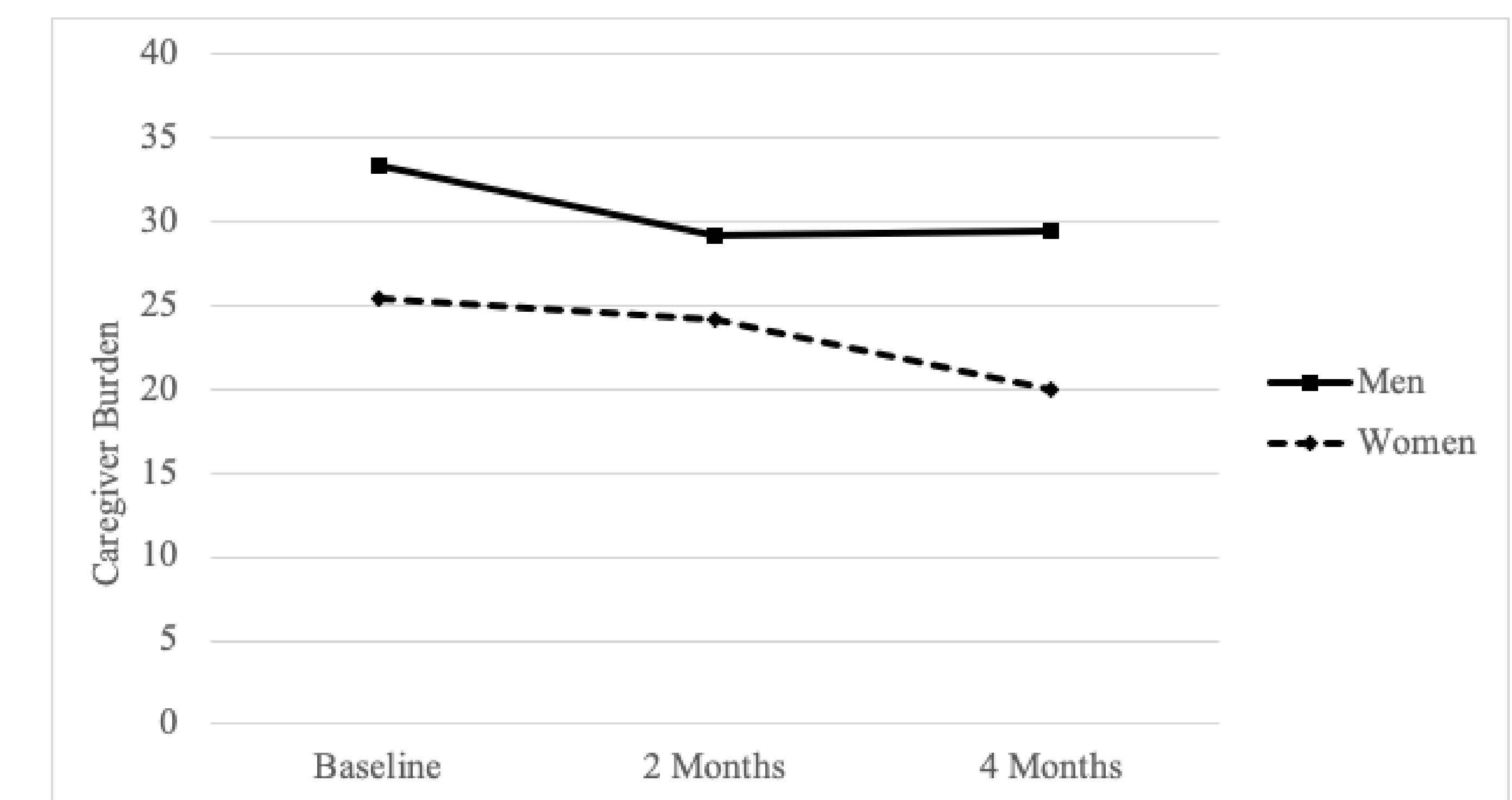
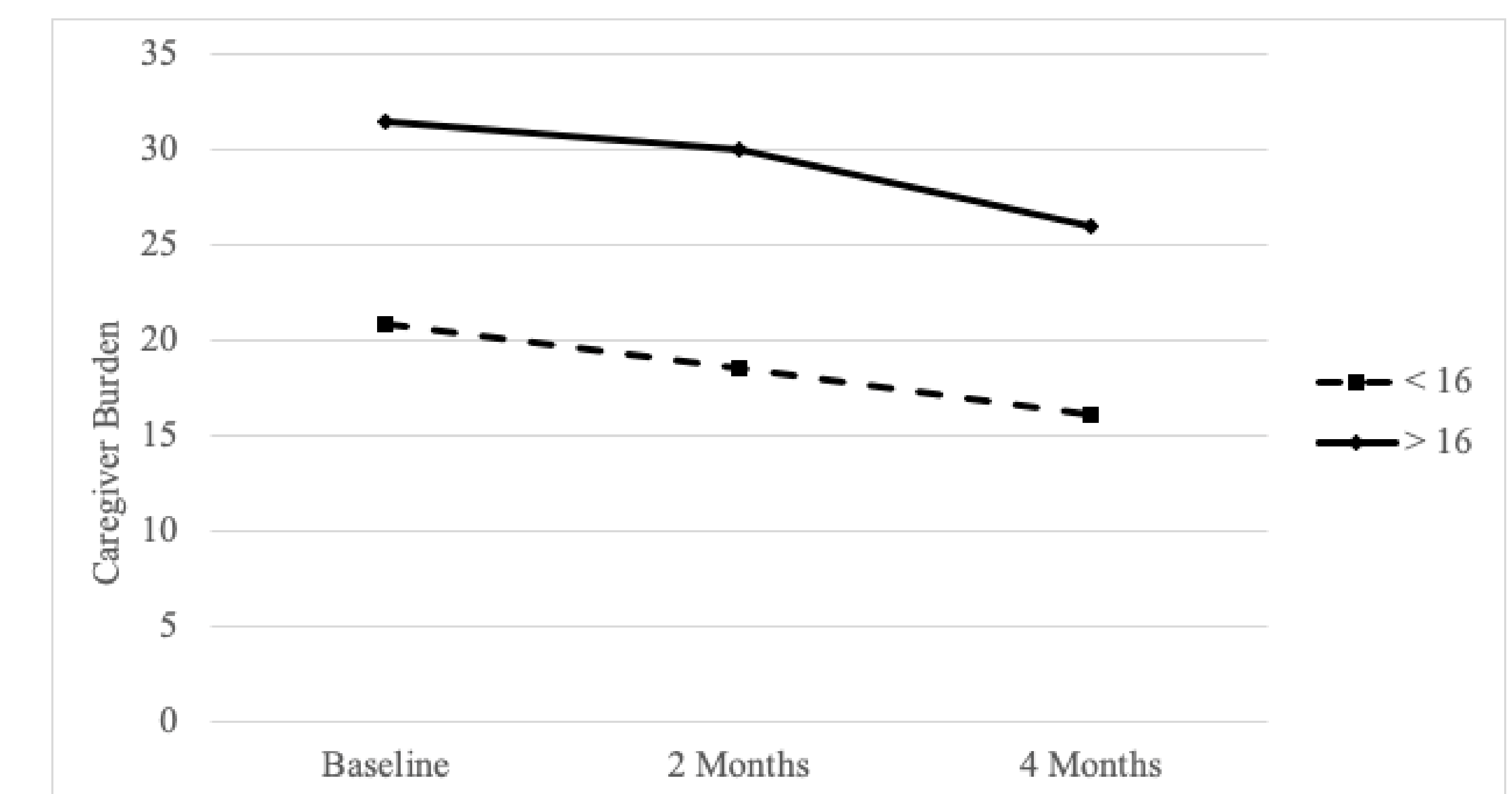


Figure 2. Trajectories of caregiver burden across social disadaptation scores.



## Conclusions

- Male caregivers and those providing care for an individual with TBI showing social impairments at hospital discharge are at increased risk for burden and should be targeted for evidence-based caregiving interventions in Latin America.