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A pilot study of *Trabajadora de salud*, a lay health worker intervention for Latinas/os with traumatic brain injuries and their caregivers

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ABSTRACT

Background: Latinas/os with traumatic brain injuries (TBIs) and their caregivers experience worse outcomes than others.
Objective: The study aimed to assess the acceptability and promise of *Trabajadora de Salud* on the functional abilities, hospital readmission, rehabilitation, employment, depression, somatic symptoms, and caregiver burden among Latinas/os with TBIs and their caregivers.
Methods: A pre-posttest experimental pilot study was conducted. A total of eight Latina/o adult patients (50% female) with mild or moderate TBI and six of their caregivers (66.7% female) were randomized to receive *Trabajadora de Salud* or a telephone only control group. *Trabajadora de Salud*, a three-month, in-home intervention administered by bilingual lay health workers, focused on: 1) providing empathy and validation of TBI symptoms, 2) addressing basic needs, 3) goal setting, and 4) improving communication with healthcare providers.
Results: Trabajadora de Salud was widely accepted by patients, caregivers, and health professionals. The functional, depression, and somatic symptoms of the patients as well as the somatic symptoms and caregiver burden of the caregivers improved more for participants in the intervention group than the control group.
Conclusions: Trabajadora de Salud demonstrated promise in improving outcomes of Latinas/os with TBIs and their caregivers and should be further studied.

Introduction

Every year 1.7 million people suffer a traumatic brain injury (TBI) resulting in death or permanent disability.[1] While the incidence rate of the general United States population is 200 per 100,000, it is 262 per 100,000 for the Hispanic population. Latina/o survivors of TBIs are more likely to be males, an average age of 30, and sustain a TBI due to transportation, falls, or violence[2] Latinas/os are more likely to experience penetrating TBIs, which are associated with significantly higher rates of respiratory failure, pneumonia, cerebrospinal fluid leak, and hypotonia.[3] Latinas/os are 42% more likely to be discharged from inpatient acute care hospitalization to their home versus to intensive rehabilitation (outpatient or inpatient) than whites. This research also found that Latinas/os are less likely to be discharged to a level of rehabilitation consistent with their injury than their matched white counterparts.[4] Latina/o survivors of TBIs are more likely to sustain long term functional inability, unemployment, and psychological issues than whites.[5,6] Due to the dependence of survivors of TBIs on others, caregivers are essential to supporting the survivor through the emotional recovery process as well as providing essential hands-on support as needed in daily living activities, such as bathing, dressing, and eating, and ensuring that patients attend medical appointments. Additionally, Latina/o caregivers express more burden and spend more time in caregiving roles.[7]

Interventions aimed at improving TBI outcomes among Latinas/os are scarce. The only published intervention solely designed for Latinas/os with TBI included a 10-week group solution-focused brief therapy (SFBT) intervention that concentrated on locus of control, skill acquisition, and family participation.[8] Facilitators were bilingual and bicultural; language, acculturation, migratory stressors, attitudes and beliefs about disability and health care, and support networks were also discussed. Participants had statistically significant improvements on hopelessness ($t = 7.9$, $p < 0.005$), life

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purpose ($t = -6.7$, $p < 0.005$), and self-regulatory ability ($t = 5.6$, $p < 0.005$). Other SFBT psycho-educational interventions have demonstrated efficacy for improving TBI knowledge and psychological adjustment for the general population of people with TBI.[9,10]

The *trabajadora de salud* (lay health worker) model has demonstrated efficacy in improving health care use, psychological, and functional outcomes of Latinas/os and Hispanics with various common health conditions (i.e. diabetes, cancer, mental health).[11] *Trabajadoras*, who are commonly bilingual and bicultural, are trained on the targeted health condition and provide culturally grounded education and/or bridge support for patients. A systematic review of 128 published articles on *trabajadora de salud* interventions for Hispanics found that in all except one study there were observed significant improvements in health behaviors regardless of the health condition targeted.[12]

Section 3025 of the United States Affordable Care Act requires Centers for Medicare and Medicaid to reduce payments to hospitals with excess readmissions.[13] In a recent study of 10,390 individuals hospitalized for a TBI, 35.5% were subsequently hospitalized during a 3-year follow-up period.[14] If *Trabajadora de Salud* is efficacious in improving outcomes among Latinas/os with TBI and their caregivers, this increased knowledge can be used to establish *Trabajadora de Salud* programs to promote equal opportunities for healthy and productive lives among Latinos who have suffered a TBI. This study aimed to assess the acceptability and promise of *Trabajadora de Salud* in improving functional abilities, hospital readmission, rehabilitation, employment, depression, somatic symptoms, and caregiver burden among Latinas/os with TBIs and their caregivers.

Methods

Participants

Patient inclusion criteria for participants included: 18 years old or older, self-identification as Latina/o, and had been hospitalized for a TBI caused by a transportation, fall, accident or another external cause within the past year prior to participation in the study. Patient exclusion criteria included: brain injury due to a stroke or internal cause and co-occurring disorders, such as mental illness or physical illness. Caregiver inclusion criteria included: 18 years old or older, identified by the patient as the primary caregiver of the patient, and a family member or friend of the patient. Caregiver exclusion criteria included: provides professional, paid caregiving to the patient. IRB approval was obtained from California State University, Channel Islands prior to recruitment. Patients were recruited from flyers at rehabilitation centers ($n = 5$) and bilingual advertisements in Latina/o newspapers ($n = 3$).

Measurements

A pre-posttest experimental design was used including measures that were tested for reliability in previous research on Latinas/os with TBIs and their caregivers. All participants were asked questions on demographic information. The following measures were used for patients: the complete Functional Independence Measure (higher scores = more independence) and only the depression and somatic symptom scales of the Neurobehavioral Functioning Inventory (higher scores = more symptoms).[15,16] Patients were also asked if they had received inpatient or outpatient rehabilitation or been hospitalized since their injury. The depression and somatic symptom scales of the Neurobehavioral Functioning Inventory and the complete Caregiver Strain Index (higher scores = more strain) were used for caregivers.[17] Patients and caregivers were both asked if they had been employed full time, part time, or temporarily prior to the patients' injury as well as at the time of the pre-test and post-test. Patients and caregivers received incentives at pre-test ($10 gift card) and post-test ($12 gift card) administration.

Intervention

Patients and caregivers were randomly assigned to an intervention or control group. The three-month, in-home, *Trabajadora de Salud* intervention was administered by bilingual lay health workers and compared to those in a control group among eight Latina/o adult patients with TBI and six of their caregivers in Ventura, Los Angeles, and Kern Counties, California. The *Trabajadora de Salud* in-person visits utilized SFBT and focused on: 1) providing empathy and validation of TBI symptoms, 2) addressing basic needs, 3) well-formed goal setting especially related to employment, and 4) improving communication with healthcare providers. *Trabajadoras* were trained on SFBT, TBIs, acculturation, migratory stressors, Latina/o attitudes and beliefs toward disability and health care, and community resources for TBI regarding health care and employment. SFBT interventions and other *trabajadora de salud* interventions have typically been brief and empowering; the therapists or *trabajadoras* both teach participants skills that can be used after the intervention is complete.[18,19] *Trabajadora de Salud* followed this brief, empowering model of support. The control group received a less intensive telephone only version of the intervention. The control group received two phone calls over a three month period by a *trabajadora* who focused on the same elements as the *Trabajadora de Salud* in-person intervention. The *trabajadoras* who conducted the telephone only intervention were also bilingual and bicultural and received the same training as the *trabajadoras* who receive the in-person intervention.

Trabajadora de salud interventions have demonstrated high retention rates by ensuring that transportation costs were covered and providing telephone reminders prior to each visit by the *trabajadora*. The *trabajadora* met the patient and caregiver at his or her home and conducted reminder phone calls with participants prior to each visit. Telephone reminders increase the development of the relationship between the *trabajadora* and participants thus demonstrating consistency with *personalismo*, a common cultural value among Latinas/os defined as “formal friendliness” and also described as a cultural emphasis on personal relationships.[20]

Due to the small sample size, descriptive statistics only were used to describe and compare outcomes of the intervention and control group.

Results

Eight patients and six of their corresponding caregivers participated in the study and were randomized into the intervention and control groups. Table 1 includes basic characteristics of the pilot study participants. Three dyads (three patients and three corresponding caregivers) received the full intervention which ranged from 6 to 12 in-person visits ($M = 8$, $SD = 3.09$), while five patients and two of their corresponding caregivers were in the telephone-only control group. The functional, depression, and somatic symptoms of the patients (Table 2) as well as the somatic symptoms and caregiver burden of the caregivers (Table 3) improved more for participants in the intervention group than the control group as shown by pre-post change in mean score. All patients were hospitalized for their injuries at least once with a range from 1 to 2 times. No patients in the intervention or control group were hospitalized again after the study began.

During the course of the pilot, the acceptability of the intervention was assessed. Patients and health professionals responded positively to the intervention protocol. A caregiver who received

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