



Depression and quality of life in Spanish-speaking immigrant persons with epilepsy compared with those in English-speaking US-born persons with epilepsy



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ARTICLE INFO

Article history:

Received 24 June 2015

Revised 17 July 2015

Accepted 18 July 2015

Available online xxxx

Keywords:

Hispanic
Epilepsy
Depression
Immigrant
Quality of life
Healthcare disparities

ABSTRACT

Objective: This study aimed to examine levels of depression and quality of life in Spanish-speaking (less acculturated) immigrants with epilepsy compared with those in English-speaking US-born persons with epilepsy (PWEs).

Methods: The study included 85 PWEs – 38 Spanish-speaking immigrants with epilepsy and 47 US-born PWEs. All patients underwent video-EEG monitoring and completed depression and quality-of-life inventories in their dominant language (Spanish/English). Chart review of clinical epilepsy variables was conducted by an epileptologist. **Results:** Our study revealed that depression scores were significantly higher in Hispanic PWEs (21.65 ± 14.6) than in US-born PWEs (14.50 ± 10.2) ($t(64.02) = -2.3$, two-sided $p = .025$). Marital status, medical insurance, antidepressant use, seizure frequency, and number of antiepileptic drugs (AEDs) were tested as covariates in the ANCOVA framework and were not statistically significant at the 0.05 significance level.

Fewer Hispanics were prescribed antidepressant medications (13.15% for Hispanics and 40.42% for US-born, $\chi^2(1,85) = 7.71$, $p = .005$) and had access to comprehensive health insurance coverage ($\chi^2(1,85) = 13.70$, $p = 0.000$). Hispanic patients were also found to be receiving significantly less AEDs compared with their US-born peers ($t(83, 85) = 2.33$, $p = .02$). Although quality of life was diminished in both groups, Seizure Worry was worse for Hispanics after accounting for potential effects of marital status, medical insurance, use of antidepressants, seizure frequency, and number of antiepileptic drugs (AEDs) ($(1, 83)$, $F = 7.607$, $p = 0.007$).

Significance: The present study is the first of its kind to examine depression and quality of life in Spanish-speaking US immigrants with epilepsy. Spanish-speaking immigrants with epilepsy have been identified as a group at risk. They demonstrated higher depression scores and more Seizure Worry independent of epilepsy and demographic characteristics compared with their US-born peers. The Hispanic group was receiving less treatment for depression, was taking less AEDs, and had less access to comprehensive health coverage compared with non-Hispanics.

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1. Introduction

The prevalence of depression in persons with epilepsy (PWEs) is higher than in matched healthy populations, with figures ranging from 11 to 62% [1,2]. In fact, numbers are suspected to be even greater because of underdiagnosing as PWEs are not regularly screened for depression [3]. Accurate recognition of this comorbidity is particularly important because it has the potential to diminish quality of life [4], lead to impoverished health outcomes [5], and it has been associated

with significantly higher suicide rates [6]. There are a number of factors that contribute to poor quality of life in PWEs, including health (seizure-specific) worries, social stigma, as well as depression [7–9].

The Hispanic population of the United States is estimated to be 52 million, 16.7% of the total US population [10]. Over half (53.1%) of the foreign-born US population originates from Latin America and the Caribbean, and as such represents a substantial subgroup. Hispanics in the US, regardless of migration status, have been identified as a high-risk group for depression along with other mental health ailments [11]. It is speculated that the stressful experiences immigrants encounter, including linguistic, financial, acculturative, legal, and discriminatory challenges, contribute to poorer mental health [12].

To our knowledge, the only other study investigating depression and quality of life in Hispanics with epilepsy in the US examined PWEs of

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Mexican origin who completed self-report questionnaires in English [13]. The study concluded that there were differences in rates of depression, perceptions of stigma, and quality of life based on different levels of acculturation. Predominantly Spanish-speaking immigrants with epilepsy have not been studied. It is important to study this subgroup because they may differ on acculturation rates from US-born and English-speaking Hispanics as acculturation closely relates to mastery of the host culture's language [14]. Lacking sufficient knowledge of the host culture's language has the potential to increase this group's vulnerability when additional barriers to health care are encountered and the patients are not able to properly communicate with their health-care providers [15].

The purpose of the present study was to assess the levels of depression and quality of life in Spanish-speaking US-Hispanic immigrants compared with English-speaking US-born PWEs. The main hypothesis of this study was that Hispanic immigrant PWEs would exhibit elevated depression and lower quality-of-life scores compared with US-born PWEs after controlling for epilepsy and demographic variables. Gaining a clearer understanding of potential mental health problems in this large and growing portion of the US population contributes important clinical information for treating neurologists and mental health workers.

2. Methods

2.1. Subjects

This study included 93 consecutive patients with a diagnosis of epilepsy confirmed through inpatient video-EEG monitoring, who also underwent a comprehensive neuropsychological battery between 2006 and 2011. Neuropsychological testing was requested as part of a presurgical workup or because there was a need to characterize cognitive complaints (i.e., memory or language deficits). Of these, 45 were Hispanic immigrants from Central and South America, as well as the Caribbean, who were Spanish-dominant and required testing in Spanish by a bilingual neuropsychologist. The first forty-eight consecutive US-born, English-speaking patients were included.

2.2. Procedures

The Hispanic immigrant patients were tested and interviewed by Spanish-speaking neuropsychologists (LM, MB, and GV) who administered a neuropsychological battery as well as two self-report measures: the Beck Depression Inventory (BDI-II) and the Quality of Life in Epilepsy Inventory-31 (QOLIE-31). The following variables were determined through chart review by an epileptologist (ML) who was blind to group membership: epilepsy type and syndrome, etiology, epilepsy surgery (yes/no), seizure frequency, age at onset, and duration of seizures. Anti-epileptic drugs (AEDs) were also tallied for each patient. Seizure frequency was defined by the total number of seizures in the six months prior to neuropsychological testing. For the purpose of the analysis, simple partial seizures were not counted.

Demographic information, including health insurance, marital and working status, education, as well as current prescription of antidepressants, was gathered through neuropsychological clinical interviews and chart review. To determine socioeconomic status, we used two proxies: health insurance as well as median household income of their postal zone, as reported by the U.S. Census Bureau [16]. Health insurance was categorized as follows: uninsured/Medicaid and Medicare/private (i.e., HMOs, PPOs, etc.). Additionally, country of origin and sum of years of residence in the US were collected for the Hispanic sample. Four Puerto Rican patients were included as Hispanic immigrants because they had moved to the mainland less than two years prior to the assessment and spoke only Spanish.

The initial number of 93 patients was reduced to 86 after the following exclusions: two in the Hispanic sample were found to have a dual diagnosis of epilepsy and PNESS, and five scored less than 70 on

the aggregate IQ scale as assessed by the cognitive batteries (one was English-dominant and five were Spanish-dominant). A total of 38 Spanish-speaking immigrants and 47 US-born patients were included in the final sample.

The standard battery of tests administered to our Spanish-speaking patients at the Northeast Regional Epilepsy Group includes cognitive tests that are part of the Neuropsychological Screening Battery for Hispanics (NeSBHIS) as well as a measure of intelligence (Batería III Woodcock–Muñoz). English-speaking patients were administered a comprehensive neuropsychological battery, including an intelligence test (WASI) as well as other cognitive measures of language, memory, attention, and motor skills. The patients also completed two self-report measures, which assessed depression and quality of life in epilepsy.

The Batería III Woodcock–Muñoz is the Spanish adaptation of the *Woodcock–Johnson III® (WJ III®)* [17]. The cognitive battery produces scores on six major scales, of which one is the Brief Intellectual Ability (BIA) Score. The BIA represents an average of three subtests: Verbal Comprehension (Comprensión Verbal), Concept Formation (Formación de Conceptos), and Visual Pairing (Pareo Visual). Normative data for the test were gathered from 8818 subjects in over 100 geographically diverse communities in the United States. Reliability of the measure is excellent in that most of the *WJ III* tests show strong reliabilities of .80 or higher; several are .90 or higher. For the purpose of this study, the BIA score was utilized as a criterion for exclusion ($BIA < 70$). At this time, this test represents the only available measure of intellectual functioning for Spanish-speaking test takers in the US that has been shown to have acceptable validity and reliability scores.

The Wechsler Abbreviated Scale of Intelligence (WASI) consists of four subtests: Vocabulary, Similarities, Block Design, and Matrix Reasoning. The four-subtest form produces Full Scale (FSIQ) scores [18]. For the purpose of this study, FSIQ was utilized as a criterion for exclusion ($FSIQ < 70$). The Woodcock–Johnson versions and the Wechsler intelligence versions can be considered comparable as they have shown equally strong reliabilities and validities, and commonalities between both tests have been determined regarding the Full Scale IQ and the Broad Cognitive Ability score [19].

The Beck Depression Inventory – II (BDI-II) is a 21-item, self-report rating inventory measuring characteristic attitudes and symptoms of depression [20]. Internal consistency for the BDI-II ranges from .73 to .92 with a mean of .86. Answers are scored on a 0 to 3 scale (minimal: 0 and severe: 3). Scores are interpreted as: mild depression (< 15), moderate depression (15–30), and severe depression: (> 30). The BDI-II was translated into Spanish in 1996, and its reliability has been demonstrated with medical samples [21].

The Quality of Life in Epilepsy Inventory (QOLIE-31) is a 31-question inventory designed to measure an adult's quality of life and asks about several aspects of health [22]. Its seven scales assess emotional well-being, social functioning, energy/fatigue, cognitive functioning, worry about seizures, medication effects, and overall quality of life (a single 10-point Likert item). A weighted average of the multi-item scale scores is used to obtain a total score. Additionally, the inventory utilizes a single item to assess overall health. When scoring, a higher t-score indicates a more desirable quality of life. The test is designed specifically for people with epilepsy and, as such, addresses issues as driving, seizures, and medication. The QOLIE-31 has been translated into nine languages, including Spanish. For the QOLIE-31, quality of life was determined to be diminished if the scale fell less than 1.5 standard deviations below the mean.

Internal Review Board (IRB) approval for an anonymous archival record review was obtained with removal of non-relevant PHI (Copernicus IRB NRE1-11-155).

2.3. Data analysis

Categorical demographic data and medical characteristics were compared between ethnic groups with the chi-square test. Quantitative continuous variables were examined with independent t-tests. Pearson

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