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Assessing depression severity with a self-rated vs. rater-administered instrument in patients with epilepsy

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ABSTRACT

Rationale: Up to 30–50% of individuals with epilepsy have depressive symptoms, which often complicate seizure management and reduce overall quality of life. To identify and manage depressive symptoms appropriately, clinicians need standardized instruments that can accurately identify and monitor those with clinically significant depression. The self-reported 9-item Patient Health Questionnaire (PHQ-9) has been used relatively widely to screen and monitor depression in epilepsy. The rater-administered Montgomery–Asberg Depression Rating Scale (MADRS) is a rater-administered instrument widely used in depression treatment trials but less widely applied in epilepsy. This secondary analysis from 2 epilepsy self-management clinical trials compared depression severity ratings using the PHQ-9 and the MADRS instruments.
Methods: Data for this analysis were derived from pooled baseline and longitudinal data from 2 prospective epilepsy self-management randomized controlled trials (RCTs). Both RCTs assessed depression with the PHQ-9 and the MADRS. For this analysis, total depression severity scores and case classification of individuals with no/minimal, mild, moderate/moderately severe, and severe depression were assessed using both PHQ-9 and MADRS.
Results: The sample contained 164 individuals with epilepsy. Demographic and clinical variables between the 2 studies were generally similar. There were 107 women (64.8%), 106 African-Americans (64.2%), and 51 Whites (30.9%). Individuals had epilepsy for an average of 22.1 (SD: 15.5). Mean past 30-day seizure frequency at baseline was 3.1 (SD: 11.6). Baseline mean PHQ-9 was 10.7 (SD: 6.80) with depression severity of 32 (19.6%) not or minimally depressed, 47 (28.8%) mildly depressed, 37 (22.7%) moderately depressed, 27 (16.6%) moderately severely depressed, and 20 (12.3%) severely depressed. Baseline mean MADRS severity was 18.5 (SD: 11.3) with 30 (18.8%) not or minimally depressed, 27 (16.9%) mildly depressed, 92 (56.1%) moderately depressed, and 11 (6.9%) severely depressed. The correlation between total PHQ-9 and total MADRS was 0.843 ($p < .01$) although case classification by depression severity varied somewhat between the two instruments.
Conclusions: Standardized measures to evaluate depression severity in people with epilepsy can help identify cases and monitor treatment. The PHQ-9 and MADRS both perform well in assessing depression in people with epilepsy although administration burden is less with PHQ-9 thus making it likely preferable for settings where time and epilepsy specialty resources are limited.

1. Introduction

It is estimated that 50–69 million people among the world's population have epilepsy [1]. While often underrecognized and undertreated, depression is the most common psychiatric comorbidity in those with epilepsy with a prevalence as high as 30–50%, particularly in pharmacoresistant epilepsies [2–6]. Depressive symptoms as well as the stigmatizing nature of both epilepsy and depression contribute to a decreased quality of life in people with epilepsy [4,6,7]. Depression not only has a reciprocal relation with frequency of seizures but also has been shown to have a negative effect on adherence to antiepileptic drugs (AEDs) leading to poorly controlled epilepsy and consequently an increased risk of sudden unexpected death in epilepsy (SUDEP) [6–13]. In addition to premature mortality from seizure-related events, depression in epilepsy is associated with suicidal ideation and suicide [14,15]. Because of the extensive

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burden related to depression in epilepsy, timely diagnosis and treatment of individuals with epilepsy and comorbid depression are crucial.

Depression in people with epilepsy can be evaluated with formal diagnostic interviews based on "gold standard" psychiatric Diagnostic and Statistical Manual (DSM) criteria [16], application of self-rated instruments such as the 9-item Patient Health Questionnaire (PHQ-9) that can be used to both screen for and evaluate relative severity of depressive symptoms [16] and with depression scales that are administered by a trained external observer or rater [17–19]. Each of these methods has their pros and cons based upon specificity and sensitivity for depression evaluation, access availability, cost, rater effort, and burden on the individual being assessed. A 2014 Cochrane review of antidepressant treatment trials in people with epilepsy [20] found that rater-administered instruments were commonly used to evaluate depression treatment response and change over time in depression severity. Out of 8 identified treatment trials in the Cochrane review, 5 trials used the Hamilton Depression Rating Scale (HAM-D) while one used the Montgomery–Asberg Depression Rating Scale (MADRS). In recent years, mood disorder clinical treatment trials have moved away from the HAM-D in favor of the MADRS because of the latter having less of a reliance on somatic symptoms (i.e., fatigue, physical complaints) that tend to be common in people with medical or neurological conditions that are less related to the core features of mood disorder [21]. The MADRS has been used in several large cross-sectional and longitudinal studies of people with epilepsy [17,19,22].

The PHQ-9 has been used relatively widely in samples with epilepsy [16]. While the MADRS has been used less widely in epilepsy, it is a common primary outcome in general clinical treatment trials of major depressive disorder, and thus it is of potential utility to investigate how each of these instruments evaluates case classification and depressive symptom severity in people with epilepsy. This secondary analysis using data from 2 prospective epilepsy self-management randomized controlled trials (RCTs) compared depression severity ratings and case/severity classification using a self-rated depression screening tool (the PHQ-9) and a rater-administered depression severity instrument (the MADRS). Findings can help clinicians and researchers select and implement standardized tools in the evaluation of individuals with epilepsy who have depressive symptoms.

2. Methods

2.1. Data sources

The RCTs from which the data for this analysis are derived are 2 Centers for Disease Control and Prevention (CDC)-funded projects testing novel epilepsy self-management approaches. The analysis presented here is focused on the comparison of the PHQ-9 and MADRS depression

Table 1
A pooled baseline sample of individuals with epilepsy enrolled in 2 randomized controlled trials for epilepsy self-management.

Variable	Combined sample (n = 164)	TIME sample (n = 44)	SMART sample (n = 120)	Statistic (p-value)
Age, mean (SD)	43.09 (12.18)	48.25 (11.82)	41.18 (11.79)	.69[a]
Gender, N (%)				
Female	107 (64.8%)	26 (59.1%)	81 (66.9%)	.503[b]
Male	57 (34.5%)	18 (40.9%)	39 (32.2)	
Ethnicity, N (%)				
Not Hispanic or Latino	151 (92.6%)	41 (93.2%)	110 (92.4%)	1.000[c]
Hispanic or Latino	12 (7.4%)	3 (6.8%)	9 (7.6%)	
Race, N (%)				
African-American	106 (64.2%)	25 (56.8%)	81 (66.9%)	.456[b]
White	51 (30.9%)	16 (36.4%)	35 (28.9%)	
Other	8 (4.8%)	3 (6.8%)	5 (4.1%)	
Educational level, N (%)				
Less than high school	30 (18.3%)	11 (25.0%)	19 (15.8%)	.416[b]
Grade 12/high school grad	41 (25.0%)	8 (18.2%)	33 (27.5%)	
College 1–3 years (some college or technical school)	75 (45.7%)	21 (47.7%)	54 (45.0%)	
College 4 years or more	18 (11.0%)	4 (9.1%)	14 (11.7%)	
Duration of epilepsy in years, mean (SD)	22.1 (15.5)	20.5 (15.1)	26.3 (15.7)	.035[d]
30-day seizure frequency, mean (SD)	3.10 (11.603)	6.44 (23.033)	2.17 (4.875)	.005[a]
Type of epilepsy, N (%)				
Generalized	118 (71.1%)	30 (68.2%)	88 (72.1%)	[†]
Partial	26 (15.7%)	11 (25.0%)	15 (12.3%)	
Not sure/other	42 (25.3%)	25 (32.1%)	17 (19.8%)	
PHQ-9 total, mean (SD)	10.785 (6.80)	10.833 (5.62)	10.769 (7.18)	.704[a]
PHQ-9 severity, N (%)				
No/minimal	32 (19.6%)	4 (9.5%)	28 (23.1%)	.105[b]
Mild	47 (28.8%)	17 (40.5%)	30 (24.8%)	
Moderate	37 (22.7%)	9 (21.4%)	28 (23.1%)	
Moderately severe	27 (16.6%)	9 (21.4%)	18 (14.9%)	
Severe	20 (12.3%)	3 (7.1%)	17 (14.0%)	
MADRS total, mean (SD)	18.500 (11.34)	19.692 (11.17)	18.116 (11.42)	.497[a]
MADRS severity, N (%)				
No/minimal	30 (18.8%)	5 (12.8%)	25 (20.7%)	.719[b]
Mild	58 (36.3%)	16 (41.0%)	42 (34.8%)	
Moderate	61 (38.1%)	15 (38.5%)	46 (38.0%)	
Severe	11 (6.9%)	3 (7.7%)	8 (6.6%)	

TIME: Targeted Self-Management for Epilepsy and Mental Illness study.
SMART: Self-management for People with Epilepsy and a History of Negative Health Event study.
PHQ-9: 9-item Patient Health Questionnaire.
MADRS: Montgomery–Asberg Depression Rating Scale.
[†] No statistic calculated as some individuals endorsed multiple types of epilepsy.
[a] Mann–Whitney.
[b] Chi-square.
[c] Fisher exact.
[d] *t*-Test.