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Racial differences in coping strategies among individuals with epilepsy

Ramon Edmundo D. Bautista *

Comprehensive Epilepsy Program, Department of Neurology, University of Florida Health Sciences Center/Jacksonville, Jacksonville, Florida, USA

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ABSTRACT

Purpose: The purpose of this study was to determine whether racial differences exist in the coping styles of individuals with epilepsy.
Methods: This study utilized a survey of patients with epilepsy, including the Brief-COPE.
Results: One hundred thirteen Caucasians and 70 African-Americans comprised the study population. On univariate analysis, annual household income ($p < 0.01$), receiving disability benefits ($p < 0.01$), and number of AEDs being currently used ($p = 0.04$) significantly distinguished Caucasians from African-Americans. African-Americans reported higher utilization of religion ($p < 0.01$), denial ($p < 0.01$), emotional support ($p = 0.02$), positive reframing ($p < 0.01$), and planning ($p < 0.01$) as coping reactions compared to Caucasians. Using ordinal logistic regression, the association between being African-American and the higher utilization of religion, positive reframing, planning, and denial as coping strategies remained statistically significant.
Conclusion: Among individuals with epilepsy, African-Americans appear to utilize more engagement-type coping reactions when compared to Caucasians but also utilize more denial.

1. Introduction

Coping characterizes the manner by which people deal with stressful events. It is a complex, multidimensional process determined by environmental conditions, cognitive abilities, and personality dispositions [1].

Across many disease states, it has been recognized that, in part, racial differences determine coping strategies and that this may be, in part, responsible for health outcomes. Reynolds and colleagues [2] administered the Folkman and Lazarus Ways of Coping Questionnaire to over 800 women with invasive breast cancer. African-Americans were more likely to rely heavily on suppressing emotions, wishful thinking, and positive reappraisal as their primary coping mechanisms, while Caucasians employed higher levels of expressing emotions, problem solving, and escapism. High levels of expressing emotion as well as high emotional support appeared to be associated with improved survival. In a study of patients with type 2 diabetes, DeCoster and Cummings [3] determined that Caucasians used problem-based coping methods more than African-Americans who utilized emotion-based strategies, and the use of problem-based coping strategies was associated with better diabetes control. Racial differences in coping have not been studied in populations with epilepsy.

In this study, we determined whether racial differences also exist in the coping strategies employed by individuals with epilepsy. The results of this study may help us to better appreciate the psyche of those who bear this condition, with the intent of enhancing treatment paradigms to better align with their coping strategies.

2. Methods

This study was approved by the Institutional Review Board of the University of Florida Health Sciences Center/Jacksonville (UFHSCJ). We obtained informed consent from all subjects who participated in the study.

We surveyed 200 consecutive individuals who were seen at the outpatient clinics of the Comprehensive Epilepsy Program of the UFHSCJ, a Level 4 epilepsy center located in downtown Jacksonville, Florida, USA. The details of the study are described in an earlier publication [4], and a copy of the survey may be found in the Supplementary material section. In brief, patients enrolled into the study were adults (18 years and older) who had a diagnosis of localization-related epilepsy and did not have nonepileptic events. These patients were their own primary caregivers and able to complete the survey without assistance. The survey consisted of various demographic and clinical variables. The Neurological Institute Disorders Depression Inventory for Epilepsy (NIDDI-E) [5], Quality of Life in Epilepsy-10 Inventory (QOLIE-10) [6], Beliefs About Medicines Questionnaire-Specific (BMQ-S) [7], Sheehan Disability Scale (SDS) [8], and a screening question for health literacy ("How confident are you filling out medical forms by yourself?") were also included in the survey. This health literacy screening question correlated well with overall Short Test of Functional Health Literacy Assessment (STOHFLA) scores in detecting patients with limited health literacy

* Department of Neurology, University of Florida HSC/Jacksonville, 580 West Eighth Street, Tower One, Ninth Floor, Jacksonville, FL 32209, USA.
E-mail address: ramon.bautista@jax.ufl.edu.

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(AUROC: 0.82) [9]. We also administered the Brief Coping with Problems Experienced (Brief-COPE) Inventory using disposition-type questions to assess the subjects' coping strategies [10].

For this study, we determined whether race was significantly associated with particular coping strategies among individuals with epilepsy. Because African-Americans and Caucasians constituted the vast majority of our study population (85.6%), we focused our analysis on these two groups.

2.1. Statistical analysis

Descriptive and univariate analyses were performed at a 5% level of significance using a 2-tailed test with SPSS 15.0™. Multivariate analysis was performed using Minitab 15™. Race was the independent variable in this study. We first determined whether Caucasians and African-Americans (a categorical variable, wherein Caucasians = 0 and African-Americans = 1) differed across the various demographic, clinical, and psychosocial noncoping variables. Testing for the equality of means for interval variables was done using ANOVA (with transformation of certain data to satisfy the assumptions of ANOVA). Ordinal variables were tested using Mann–Whitney U test, while categorical data were analyzed with chi-square statistics. Adjusted standardized residuals (ASRs) were used as the post hoc comparison method.

We then determined whether racial groups differed across the various coping strategies of the Brief-COPE whose question pairs had good internal consistency (Cronbach's alpha of at least 0.5) as shown in our earlier study. This criterion was employed by Carver in the original formulation of the Brief-COPE [10]. A Cronbach's alpha of 0.5 and higher is considered to be an acceptable criterion for internal consistency [11]. Because coping reaction scores ranged from 1 to 4 with 0.5 increments, we employed the Mann–Whitney analysis. We analyzed the coping strategies of substance abuse, religion, humor, instrumental support, acceptance, denial, emotional support, positive reframing, and planning. Other coping strategies (active coping, self-blame, behavioral disengagement, venting, and self-distraction) had lower Cronbach's alpha scores and were excluded from analysis.

We then employed ordinal logistic regression to determine whether those coping strategies that were significantly different across races on univariate analysis continued to be so in the simultaneous context of the other demographic, clinical, and psychosocial variables that were shown to be significant on univariate analysis.

3. Results

Over 95% of patients who were invited to participate in the survey did so. Two hundred consenting individuals seen at the Comprehensive Epilepsy Program-UFHSCJ outpatient clinics completed the study survey. Of these, 113 subjects were Caucasians, and 70 were African-Americans, and these comprised the study population. Subjects' mean age was 41 years, and a third of the subjects were males. Nearly two-thirds of the subjects did not receive a college education, and 55% had an annual household income of less than $10,000. Only 27% of respondents operated a motor vehicle, and more than half received disability benefits. Over 80% of the subjects were not working [4].

The mean age at seizure onset was 23 years, and the average seizure duration was 19 years. Three-quarter of subjects had more than one seizure a year, and nearly 75% experienced convulsions. More than half of subjects did not know the cause for their seizures. More than half the subjects were on at least 2 seizure medications, but the majority did not experience any side effects. The mean NIDDI-E and QOLIE-10 scores were 13.2 and 33.5, respectively. The average SDS score was 13.9, while the mean BMQ-S score was 3.8. More than half the subjects did not experience serious issues with health literacy [4].

On univariate analysis, annual household income ($p < 0.01$, Mann–Whitney), receiving disability benefits ($p < 0.01$, chi-square), and the number of AEDs being currently used ($p = 0.04$, Mann–Whitney) significantly distinguished Caucasians from African-Americans. Over 70% of African-Americans had annual household incomes less than $10,000, while less than 50% of Caucasians had incomes less than $10,000. Over 70% of African-Americans received disability benefits, while less than 40% of Caucasians received such benefits. Nearly 70% of African-Americans were on at least 2 AEDs, while less than half of Caucasians were on 2 or more AEDs (Table 1).

When comparing coping reaction strategies across races, African-Americans reported higher utilization of religion ($p < 0.01$), denial ($p < 0.01$), emotional support ($p = 0.02$), positive reframing ($p < 0.01$), and planning ($p < 0.01$) compared to Caucasians (Table 2).

3.1. Multivariate analysis

The variance inflation factor (VIF) among the independent variables used in the multivariate analysis (race, annual household income, disability status, and number of AEDs) ranged from 1.1 to 1.25 indicating weak collinearity.

Summary results of the ordinal logistic regression are shown in Table 3 and detailed in the Supplementary material section. The association between the high use of religion ($p < 0.01$), denial ($p < 0.01$), positive reframing ($p < 0.01$) and planning ($p < 0.01$) coping strategies and being African-American retained statistical significance in the simultaneous context of annual household income, receiving disability benefits, and the number of AEDs used. In fact, none of these other variables were statistically significant on the multivariate analysis. The proposed models were statistically significant ($p < 0.01$) and contained Pearson and deviance values exceeding 0.05 indicating insufficient evidence that the models do not fit the data adequately. Measures of association also showed high concordance.

In contrast, the association between being African-American and use of emotional support did not retain statistical significance on ordinal logistic regression ($p = 0.12$). Annual household income, receiving disability benefits, and the number of AEDs used also did not achieve statistical significance. The proposed model was not significant ($p = 0.08$).

4. Discussion

Our study indicates that African-Americans with epilepsy utilize different coping reactions compared to Caucasians. In general, African-Americans utilize more engagement-type coping reactions [12], particularly religion, positive reframing, and planning, but also utilize more denial.

Our study is the first, to our knowledge, to document differences in coping reactions across racial groups in individuals with epilepsy. Earlier studies have detected racial differences in coping across other medical conditions. A common theme has been the increased use of religious coping strategies among African-Americans. Cotton and colleagues [13] examined the degree of religiosity among 450 individuals with HIV/AIDs and concluded that African-Americans employed religious coping strategies more than other ethnic groups. Increased spirituality was associated with greater optimism and self-esteem, leading to improved health outcomes and less mental health problems. Ghafoori and colleagues [14] interviewed urban, socially disadvantaged individuals who were exposed to trauma and determined that African-Americans had lower depressive symptoms compared to Hispanics and non-Hispanic Caucasians. African-Americans also had significantly higher scores on religiosity as well as higher levels of positive reframing and lower levels of negative coping strategies compared to other racial groups. Koenig and colleagues [15] measured the degree of religious coping and the occurrence of depressive symptoms among elderly males who were seen at a southern Veterans Administration Medical Center. The authors concluded that religious coping was encountered more frequently among African-Americans and also predicted lower depression scores.