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Within-Group Differences in Depression Among Older Hispanics Living in the United States

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Abstract

Using the Health and Retirement Study, we examine the prevalence of depression in different groups of Hispanic older adults. Respondents (n = 759) were aged 59 and older and identified themselves as Mexican American (56%), Cuban American (13%), Puerto Rican (8%), other (8%), or not specified (15%). We used a modified version of the Center for Epidemiologic Studies–Depression scale and the Composite International Diagnostic Interview to assess depressive symptoms and the presence of major depression. Relative to Puerto Ricans, each Hispanic group had significantly lower levels of depressive symptoms, except for Cuban Americans; and each Hispanic group had lower prevalence rates for major depression, except for other Hispanics, even after we adjusted for sociodemographic, cultural factors, socioeconomic, functional limitations, and chronic health conditions.

Keywords

Depression; Older Hispanics; Puerto Ricans; Mexican Americans; Cuban Americans

The U.S. Census Bureau (2005) estimates that the four largest Hispanic groups of individuals aged 65 years and older are Mexican Americans (46.7%), Cuban Americans (13%), Puerto Ricans (11%), and Central and South Americans (8%). The heterogeneity of Hispanics living in the United States underscores the complexity of investigating intragroup differences in mental health (Teresi & Golden, 1994). Generalizing findings from one particular Hispanic group—or from an aggregate Hispanic group—to all Hispanics may not reflect an accurate picture of the burden of health in specific Hispanic groups. Few studies have examined Hispanic within-group differences in depression (e.g., Guarnaccia, Angel, & Worobey, 1989), and fewer still have examined this concept in older Hispanics (e.g., Krause & Goldenhar, 1992).

To investigate this issue, we examine the differences in the level of depressive symptoms and the presence of depression that meet the criteria set forth in the third edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-III; American Psychiatric Association, 1980) in the following five groups: Mexican Americans, Puerto Ricans, Cuban Americans, other Hispanics, and Hispanics not specified. On the basis of both the Epidemiologic

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Catchment Area Study and the Hispanic Health and Nutrition Epidemiologic Survey, Oquendo and colleagues (2001) found that 1-year prevalence rates of major depression for Hispanic groups were as follows: 2.8% for Mexican Americans, 2.5% for Cuban Americans, and 6.9% for Puerto Ricans. Furthermore, with Whites as the reference group, Puerto Ricans experienced significantly higher rates of depression, whereas Mexican Americans experienced significantly lower rates of depression. Hence, we hypothesize not only that there is heterogeneity in the prevalence of depression across Hispanic groups, but also that Puerto Ricans will experience a significantly higher prevalence of depression than will each of the other Hispanic groups in this study.

Methods

Study Sample

We obtained data from public-use data files from the third wave (1996) of the Health and Retirement study (HRS; see http://hrsonline.isr.umich.edu) and the closely related second wave (1995) Asset and Health Dynamics of the Oldest Old (AHEAD) study. Details of the design and historical context of the HRS have been reported previously (Juster & Suzman, 1995). Briefly, the HRS was designed to provide data to inform major policy decisions affecting retirement, health insurance, savings, and economic well-being. The HRS was first designed as face-to-face interviews with a representative sample of U.S. adults approaching retirement. The AHEAD study was a supplement to the HRS, which took advantage of the initial eligibility screening of the HRS study to identify adults belonging to the birth cohort prior to 1924, and their spouses.

Respondents who self-identified as Hispanic or Latino(a) from the second wave of AHEAD and the third wave of the HRS were eligible for inclusion in this analysis (n = 1,377). Exclusion criteria were as follows: those individuals who (a) were younger than 59 years of age (n =479) or (b) had missing data on all items of both the Center for Epidemiologic Studies–Depression (CES-D) scale and the Composite International Diagnostic Interview–Short Form (CIDI-SF; n = 149). We include sampled persons (n = 630) and spouses (n = 129) to maximize the number of eligible Hispanics at the oldest age at which they are on the verge of retirement or are already retired (Orszag & Rodriguez, 2005). Of these 759 individuals, 7 had sample weights of zero and do not contribute to the analyses making use of complex sampling weights—which are used to yield unbiased estimates for the oversampling of Hispanics. Characteristics for the 759 older Hispanics used in the analysis are summarized in Table 1.

Measures

Depression—We examined the *severity* of depression with the CES-D scale and the *prevalence* of depression with the CIDI-SF. The AHEAD 1995 and HRS 1996 waves included a modified and telephone-administered version of the CES-D scale (Radloff, 1977; Steffick, 2000) and the CIDI-SF (L. N. Robins et al., 1988; Steffick). The CES-D scale is a measure of depressive symptoms with high internal consistency reliability (c.f. Hann, Winter, & Jacobsen, 1999); this is a finding that has been replicated in studies of older Hispanics by Danao, Padilla, and Johnson (2001) and by Nyamathi and Flaskerud (1992). The 1995 AHEAD and 1996 HRS surveys consisted of an eight-item modified version of the CES-D scale (Steffick). The following questions were asked: “Now think about the past week and the feelings you have experienced. Please tell me if each of the following was true for you: Much of the time during the past week, you felt *depressed.* (Would you say yes or no?)” The seven subsequent items were as follows: everything was an effort, sleep was restless, happy, lonely, enjoyed life, felt sad, and could not “get going.” It is important to note that the AHEAD and HRS surveys also included an additional item, “had a lot of energy,” that is not part of Radloff’s 20 CES-D items. We included the “energy” item because it is theoretically relevant to the construct of depression

and, in factor analysis (Jones & Fonda, 2004), the "energy" item loads on the common depression factor. Hence, we have a nine-item measure. The CES-D score was based on the count of the nine items, ranging from 0 to 9, with a cutoff of 7 or greater as the equivalent of 16 or higher on the original 20-symptom CES-D scale for depression.

The Composite International Diagnostic Interview–Short Form—The CIDI-SF major depression module, specifically the University of Michigan modification of the CIDI used in the HRS, was designed to estimate the prevalence of major depression over the year preceding the interview (Steffick, 2000). The CIDI-SF is a direct descendent of the Diagnostic Interview Schedule, a structured lay interview keyed to DSM-III criteria utilized in the Epidemiologic Catchment Area Study (L. Robins & Helzer, 1994; L. Robins & Regier, 1991; L. N. Robins et al., 1988). We operationalized CIDI major depression by applying DSM-III criteria to the symptom data collected with the CIDI-SF. Persons noted with CIDI–DSM-III major depression had at least sadness or loss of interest and a total of five DSM-III symptoms of depression.

Sociodemographic characteristics—The HRS and AHEAD surveys included an extensive array of sociodemographic questions. Included in this study are self-identified race or ethnicity, age, and sex. Consistent with the U.S. Census questions regarding race or ethnicity, participants were first asked if they considered themselves Hispanic or Latino; they were also asked if they considered themselves primarily Mexican American, Puerto Rican, Cuban American or other. We placed those who did not choose a category in a "not specified" group.

Cultural factors—Participants reported their place of birth (born in the United States = 1; born elsewhere = 0) and preferred language for the interview (Spanish = 1 or English = 0) as a part of the limited acculturation construct used in this study, and we entered these items separately into the regression model (Black, Markides, & Ray, 2003; Coronado, Thompson, McLerran, Schwartz, & Koepsell, 2005; Cuellar, Arnold, & Maldonado, 1995).

Socioeconomic status—We included three measures of socioeconomic status (SES) in this study: household occupation, educational attainment, and household income. Household occupation reflects the highest occupation held from among the current or most recent, penultimate, or longest held career for the respondent or spouse for HRS respondents and spouse or other household resident for AHEAD respondents (Jones, 2003). The rationale for this categorization is that women may not have held a job outside the home. However, we do not view this as a valid measure of their SES. The measure was created from summary variables in the HRS–AHEAD public use files. In our models, we formed two groups: manual (farm workers, laborers and service workers, and operatives) and nonmanual (craftsmen and foremen, sales workers, clerical workers, managers, and professional or technical workers).

In our models, we grouped participants into the following six categories for highest grade completed: no formal education, Grades 1–8, Grades 9–11, Grade 12, and Grades 13 and up. We assessed household income with a battery of items addressing the respondent's and spouse's income from various sources. In this analysis, we represented total household income by using a dummy variable, identifying those persons with an annual income in 1996 dollars of less than $15,000, relative to those persons with more income.

Health conditions—Common chronic comorbidities found in older Hispanics (Markides, Rudkin, Angel, & Espino, 1997) that were included in the HRS were diabetes or high blood sugar, pulmonary diseases (e.g., chronic bronchitis or emphysema), and heart conditions (including heart attack, coronary heart disease, angina, congestive heart failure, or other heart problems), as well as hypertension, cancer, arthritis, and stroke.

Functional limitations—We included four common activities of daily living and six common instrumental activities of daily living found in the both the AHEAD 1995 and HRS 1996 waves (McHorney, 2002). The activities of daily living were walking several blocks; climbing one flight of stairs without resting; pulling or pushing large objects, such as a living room chair; and lifting or carrying weights over 10 lb (4.5 kg), such as a heavy bag of groceries. The instrumental activities of daily living were picking up a dime from a table; preparing hot meals without help; shopping for groceries without help; making telephone calls without help; and managing one's money. We summed the dichotomous responses within each category to determine the number of difficulties.

Statistical Analysis

We conducted a linear regression to explore differences in mean CES-D scores between Hispanic groups. We obtained crude and adjusted estimates—controlling for sociodemographic, SES, health, functioning, and cultural variables. We then conducted a logistic regression to examine differences in the prevalence of CIDI-SF major depression across groups, with and without holding constant the sociodemographic, SES, health, functioning, and cultural variables. In all of our models we treated Mexican Americans (the largest group) as the reference group. We handled missing data among independent variables with multivariate imputation by chained equations (Royston, 2004), using Stata software (StataCorp, 2005). Linear and logistic regression models incorporated complex sampling design weights for the Hispanic subsample, and we accomplished averaging over five imputed data sets by use of Mplus software (Muthén & Muthén, 1998–2006). We used a significance level of .05 or smaller to guide inference.

Results

This analysis included 759 Hispanic participants who were between the ages of 59 and 94 years. Sociodemographic, sociocultural, functioning, and health characteristics for the entire sample are shown in Table 1. The majority of the participants were self-identified as Mexican Americans (57%). Note the following differences between groups: Nearly all the Cuban Americans were interviewed in Spanish; half of all Puerto Ricans in the study were interviewed in Spanish; two thirds of the Mexican Americans were interviewed in Spanish; but the majority of Hispanic others were actually interviewed in English. In contrast to the individuals in the other groups, the majority of whom were born outside of the United States, approximately two thirds (60%) of the Mexican Americans were born in the United States.

We explored the internal consistency reliability of the CES-D scale score in the different Hispanic populations by calculating Kuder–Richardson formula 20 (K-R 20) coefficients. The KR20 is analogous to Cronbach's alpha, but it is used for binary variables. We compared these estimates across ethnicity groups by using variance ratio tests (Berk, 1982). For all groups, the CES-D scale demonstrated *adequate* internal consistency reliability: the K-R 20 coefficients were 0.78 for Mexican Americans, 0.87 for Puerto Ricans, 0.89 for Cuban Americans, 0.85 for other Hispanic groups, and 0.78 among Hispanics not specified. Compared to Mexican Americans, there was no evidence that the internal consistency reliability was significantly different from the other groups.

Table 2 shows the crude and adjusted estimates for mean CES-D scores and prevalence of CIDI-SF major depression. In the crude estimates, relative to Puerto Ricans, the following three groups had a significantly lower level of depression: Mexican Americans ($p < .01$), other Hispanics ($p < .05$), and Hispanics not specified ($p < .05$). The Cohen's effect size difference for CES-D symptom count between Puerto Ricans and each of the groups specified herein was a medium effect size (in respective order, 0.60 pooled standard deviation or *SD* units, 0.50 pooled *SD*, and 0.60 pooled *SD*). After adjustment, the difference between Puerto Ricans and

each group specified herein was reduced by 18%, 9%, and 21%, respectively, but still recorded a medium effect size difference (Mexican Americans, 0.50 pooled *SD*, $p < .01$; other Hispanics, 0.40 pooled *SD*, $p < .05$; and Hispanics not specified, 0.50 pooled *SD*, $p < .05$). For the prevalence of CIDI-SF major depression, the prevalence among Mexican Americans was 4.1% ($p < .001$), among Cuban Americans was 9.7% ($p < .05$), and among Hispanics not specified was 1.9% ($p < .001$). These were all significantly different from the prevalence among Puerto Ricans, which was 16.9%. The prevalence of major depression increased for all the groups after adjustment, with differences remaining significant ($p < .001$) between Puerto Ricans and both Mexican Americans and Hispanics not specified. Not only did Cuban Americans show an increase in the difference in prevalence for major depression when compared with Puerto Ricans, but also the level of significance increased ($p < .001$).

Discussion

We found the prevalence of depression across Hispanic groups in the United States to be highest in Puerto Ricans, even though this was the smallest group. With Puerto Ricans as the comparison group, we found that, after we adjusted for health conditions, functional limitations, SES, cultural, and sociodemographic characteristics, Mexican Americans, other Hispanics, and Hispanic not specified groups all experienced a significantly lower number of depressive symptoms. Both Mexican Americans and Hispanic group not specified continued to experience a lower prevalence of major depression, but these prevalence rates increased after we controlled for the same factors used in the CES-D model. In addition, Cuban Americans experienced an increase in the prevalence of major depression, a significant increase in the difference with Puerto Ricans after adjustments, as well as an increase in the level of significance from the unadjusted model. Therefore, our findings support our hypothesis that the assumption of homogeneity of the prevalence of depression across Hispanic subgroups is not tenable. Furthermore, Puerto Ricans experienced a significantly higher number of depressive symptoms and prevalence of depression than did the three Hispanic groups in this study.

There are some limitations of this study that deserve comment. Because of an uneven distribution of ethnicity groups and rarity of depression, the effective sample size was small. Another limitation of our study is that the CES-D version used in the HRS–AHEAD surveys was abbreviated: This precludes a direct comparison of the results presented in this study to the results of studies that use the original 20-item scale (Radloff, 1977).

Despite these limitations, this study has several strengths. First, it draws from a representative community-dwelling sample, which was not limited to persons who sought treatment, met clinical criteria for depression, or received treatment for depression. A treatment-based study of Hispanic group differences might be expected to produce a more homogeneous sample as a result of the implicit selection in help seeking or in identifying suitable cases for treatment. In addition, the HRS survey provides a rich source of data so that many potentially influential factors can be evaluated simultaneously. Another strength of this study is that we used two different measures of depression—the CES-D scale and the CIDI-SF, the latter of which is among the instruments recommended by the National Heart, Lung and Blood Institute assessment panel (2004) for a diagnostic measure of depression in epidemiological studies.

This research sheds light on the heterogeneity of the prevalence of depression purely within Hispanic groups. Although we have evidence that some of the prevalence can be attributed to the distribution of background variables, we were unable to account for most of the observed prevalence. The findings are consistent with those of Oquendo and colleagues (2001) in that Puerto Ricans had the highest prevalence of depression, which was even higher than that of Whites. Because Puerto Rico is a territory of the United States, further research is needed to

examine the exposure to factors that account for a higher prevalence of depression for Puerto Ricans than for other Hispanic groups and Whites living in the United States. We think that this research provides suggestive evidence of differences in the expression and occurrence of depression in older Hispanics from different cultural groups; these differences should be investigated in future research redressing the limitations of the current study.

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Table 1

Respondent Characteristics, Sample for Analysis of the Assets and Health Dynamics of the Oldest Old Study (AHEAD, 1995) and the Health and Retirement Study (HRS, 1996) (*N* = 759)

Respondent characteristic	Mexican American (*N* = 427)	Puerto Rican (*N* = 56)	Cuban (*N* = 101)	Hispanic-Other Ethnicity (*N* = 60)	Hispanic-Ethnicity Not Specified (*N* = 115)
Sociodemographic	(years) *SD*	(years) *SD*	(years) *SD*	(years) *SD*	(years) *SD*
Age	68.6 (8.1)	69.2 (9.0)	71.2 (8.8)	75.2 (6.6)	63.0 (4.1)
Sex	*n* %	*n* %	*n* %	*n* %	*n* %
Male	179 (41.9)	14 (25.0)	44 (43.6)	17 (28.3)	55 (47.8)
Female	248 (58.1)	42 (75.0)	57 (56.4)	43 (71.7)	60 (52.2)
Cultural Factors					
Birthplace					
Born outside of the US	184 (43.1)	41 (73.2)	98 (97.0)	30 (50.0)	64 (55.7)
Born in the US	243 (56.9)	15 (26.8)	3 (3.0)	30 (50.0)	51 (44.3)
Interview Language Preferred					
Spanish	263 (61.6)	28 (50.0)	90 (89.1)	26 (43.3)	58 (50.4)
English	164 (38.4)	28 (50.0)	11 (10.9)	34 (56.7)	57 (49.6)
Socioeconomic Status					
Household Income Level					
Low income (<$15,000/year)	258 (60.4)	31 (55.4)	66 (65.3)	32 (53.3)	42 (36.5)
Medium income (>=$15,000/year)	142 (33.3)	21 (37.5)	33 (32.7)	20 (33.3)	60 (52.2)
Occupational Level (highest achieved)					
Manual laborer (eg., operative)	237 (55.5)	24 (42.9)	52 (51.5)	26 (43.3)	45 (39.1)
Professional, managerial, clerical	166 (38.9)	23 (41.1)	44 (43.6)	25 (41.7)	58 (50.4)
Education (highest grade completed)					
No formal education	55 (12.9)	3 (5.4)	2 (2.0)	3 (5.0)	4 (3.5)
Grades 1–7	205 (48.0)	18 (32.1)	46 (45.5)	21 (35.0)	31 (27.0)
Grade 8	42 (9.8)	5 (8.9)	10 (9.9)	5 (8.3)	13 (11.3)
Grades 9–11	39 (9.1)	11 (19.6)	7 (6.9)	9 (15.0)	16 (13.9)
Grade 12	60 (14.1)	12 (21.4)	14 (13.9)	11 (18.3)	25 (21.7)
Grade 13 and up	26 (6.1)	7 (12.5)	22 (21.8)	11 (18.3)	26 (22.6)
Chronic health conditions ever had					
High blood pressure	201 (47.1)	27 (48.2)	55 (54.5)	34 (56.7)	53 (46.1)
Heart condition	78 (18.3)	12 (21.4)	22 (21.8)	14 (23.3)	16 (13.9)
Diabetes	109 (25.5)	14 (25.0)	19 (18.8)	10 (16.7)	18 (15.7)
Stroke	18 (4.2)	2 (3.6)	5 (5.0)	3 (5.0)	1 (0.9)
Cancer	26 (6.1)	4 (7.1)	12 (11.9)	8 (13.3)	6 (5.2)
Arthritis	121 (28.3)	18 (32.1)	41 (40.6)	21 (35.0)	26 (22.6)
Pulmonary disease	29 (6.8)	4 (7.1)	7 (6.9)	5 (8.3)	5 (4.3)
Physical Functioning					
Activities of Daily Living (number of difficulties, 0–4)					
0	212 (49.6)	21 (37.5)	60 (59.4)	32 (53.3)	70 (60.9)
1	90 (21.1)	11 (19.6)	15 (14.9)	10 (16.7)	22 (19.1)
2	49 (11.5)	9 (16.1)	10 (9.9)	6 (10.0)	11 (9.6)
3	41 (9.6)	5 (8.9)	8 (7.9)	3 (5.0)	9 (7.8)
4	33 (7.7)	9 (16.1)	8 (7.9)	8 (13.3)	3 (2.6)
Instrumental Activities of Daily Living (number of difficulties, 0–6)					
0	337 (78.9)	42 (75.0)	82 (81.2)	50 (83.3)	103 (89.6)
1	51 (11.9)	11 (19.6)	12 (11.9)	6 (10.0)	9 (7.8)
2	17 (4.0)	1 (1.8)	5 (5.0)	2 (3.3)	3 (2.6)
3	8 (1.9)	1 (1.8)	0 (0.0)	1 (1.7)	0 (0.0)
4	4 (0.9)	0 (0.0)	1 (1.0)	0 (0.0)	0 (0.0)
5	6 (1.4)	0 (0.0)	1 (1.0)	0 (0.0)	0 (0.0)
6	1 (0.2)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)

Notes: Sample *n*'s may not sum to total due to missing data. Percentages are based on complete sample totals within each group.

AHEAD = Assets and Health Dynamics of the Oldest Old; HRS = Health and Retirement Study; *SD* = standard deviation.

Table 2

Crude and Adjusted Estimates of Mean CES-D Symptom Count and Prevalence of CIDI-SF Major Depression, Health and Retirement Study (1996) and Assets and Health Dynamics of the Oldest Old (1995) Study Participants (N = 759)

	Count of CES-D Symptoms				Prevalence of CIDI-SF Major Depression			
	Crude		Adjusted‖		Crude		Adjusted‖	
Hispanic Latino(a) Ethnic Groups	**M**	**(SE)**	**M**	**(SE)**	**%**	**CI**	**%**	**CI**
Puerto Rican (n = 56)[a]	3.5	(0.5)	3.0	(0.4)	16.9	(11.0, 25.2)	19.3	(8.6, 37.8)
Mexican American (n = 427)	2.2	(0.1)**	1.9	(0.1)**	4.1	(2.6, 6.5)***	8.2	(3.8, 17.1)***
Cuban (n = 101)	2.3	(0.4)	2.1	(0.5)	9.7	(8.4, 11.1)*	11.7	(8.1, 16.6)***
Other Hispanic (n = 60)	2.0	(0.4)*	1.7	(0.4)*	4.8	(1.1, 18.6)	6.8	(0.9, 38.0)
Hispanic group not specified (n = 115)	2.2	(0.1)*	2.1	(0.2)*	1.9	(0.4, 7.4)***	3.0	(0.7, 11.9)***

Notes: CES-D, Center for Epidemiologic Studies - Depression scale used in this study was a modified version of the 20-item original scale, which consisted of 9-items; M, mean; SD, standard deviation; SE, standard error; %, prevalence per 100; CI, 95% confidence interval.

[a]Reference group for ethnicity group comparisons.

*$p < 0.05$;

**$p < 0.01$;

***$p < .001$.

‖Adjusted for the main effect of the following variables centered: age, gender, birthplace, preferred language of interview, income status, occupational achievement, education, ADI, IADL, high blood pressure, heart condition, diabetes, stroke, and cancer.