Research on Aging
Volume 30 Number 4
July 2008 488-502

10.1177/0164027508316617
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Depressive Symptoms in Four Racial and Ethnic Groups

The Survey of Older Floridians (SOF)

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Responding to the need for research on the mental health of minority elders, the present study explored determinants of depressive symptoms using a statewide sample of African Americans, Cubans, non-Cuban Hispanics, and Whites from the Survey of Older Floridians. The investigators focused on direct and interactive effects of demographic variables and stressful life conditions (chronic health conditions, functional disability, and negative life events) on depressive symptoms. A hierarchical regression model showed that lower income, more chronic health conditions, greater disability, and more life events were common risk factors for depressive symptoms across all groups. The impacts of age and education were found to be group specific. Significant interactions were also obtained among predictor variables in each group, identifying risk-reducing and risk-enhancing factors within each group. The findings on race-specific risk factors and within-group variability should be taken into consideration when developing and implementing services for diverse older populations.

Keywords: *mental health; depressive symptoms; minority elders*

The general trend toward population aging, coupled with the growth of racial and ethnic minorities, has prompted the need for more research on racial and ethnic minority elders. In the past decade, a growing body of

Authors' Note: This project was supported by the Administration on Aging Research (grant 90AM2750; Dr. Jennifer Salmon, principal investigator; Dr. David A. Chiriboga, co–principal investigator). Correspondence concerning this article should be addressed to Yuri Jang, Florida Mental Health Institute, University of South Florida, Department of Aging and Mental Health, 13301 Bruce B. Downs Blvd., MHC 1400, Tampa, FL 33612; e-mail: yjang@fmhi.usf.edu.

literature has been accumulated on disparities in physical health, but research on minority mental health is still lacking (Blazer et al. 1998; U.S. Department of Health and Human Services 2001).

Among the several minority groups, African Americans are most studied (Blazer et al. 1998; Ferraro and Farmer 1996). Increasing attention is now being paid to Hispanic populations, which together have emerged in the past three years as the largest of the omnibus minority groups in the United States (U.S. Census Bureau 2006). However, research on Hispanics often treats the latter as members of a single and presumably homogeneous group. This approach may lead to overgeneralization and oversimplification. Indeed, intragroup differences in Hispanics often cannot be fully explored, because of insufficient representation of specific subgroups in most data sets (e.g., Angel and Angel 1992; Burnette and Mui 1997; Krause and Goldenhar 1992).

In the present study, we paid particular attention to one specific group of Hispanic elders: Cuban Americans. Cubans in the United States have been found to be distinct from other Hispanic populations in several ways. For example, compared with other Hispanic groups, Cuban Americans are older and have higher levels of income and education and a lower mortality rate (Pew Hispanic Center 2006; U.S. Census Bureau 2006). Of particular interest is that over 18% of Cuban Americans are aged 65 years and older, compared with less than 5% of Mexican Americans, 7% of Puerto Ricans, and over 12% of the general population (Pew Hispanic Center 2006). Cubans are also more geographically isolated: more than two thirds live in Florida, whereas members of other Hispanic groups are more widely dispersed across states (Pew Hispanic Center 2006). Their uniqueness and relatively high proportions in Florida led us to select Cuban American elders for further assessment, although for comparative purposes, we also included a mixed group of non-Cuban Hispanics as well as non-Hispanic Whites and African Americans.

Our focus on depressive symptoms arose from the fact that previous population-based studies of older adults have generally reported higher levels of depressive symptoms in racial and ethnic minorities compared with non-Hispanic Whites (e.g., Cochran, Brown, and McGregor 1999; Dunlop et al. 2003). With prevalence levels in the middle to upper 20s, the rate of probable depression among Hispanic elderly population is particularly high (Black, Markides, and Miller 1998; Gonzalez, Haan, and Ladson 2001) compared with the 9% to 16% found among White and African American elders (Berkman et al. 1986; Blazer et al. 1998).

Within the Hispanic population, research on the mental health of Cuban elders is both sparse and inconsistent. Analyses based on the 1988 National Survey of Hispanic Elderly People suggest that Cuban elders have lower levels of psychological distress than other Hispanic subgroups (e.g., Angel and Angel 1992; Burnette and Mui 1997; Krause and Goldenhar 1992). Data from the Hispanic Health and Nutrition Examination Survey also showed that Cubans were less likely to be depressed, although these results were based on a sample whose upper age range was 75 years (e.g., Narrow et al. 1990). On the other hand, in a report by Lacayo (1980), Cuban elders were more likely to report feelings of depression and fear. Similarly, the rate of suicide among Cuban elders has been shown to be higher than among other ethnic groups (Llorente et al. 1996). In part, these inconclusive findings may reflect differences in the age ranges and compositions of samples, as well as differences in the instruments used to assess mental health conditions.

With regard to determinants of depressive symptoms among older adults, it is generally recognized that certain demographic characteristics (e.g., female gender, unmarried status, and lower socioeconomic status) are associated with increased vulnerability to depressive symptoms. The mental health status of older adults is often influenced by situational factors such as chronic strains (e.g., chronic health constraints and functional disability) and acute stressors (e.g., negative life events) (Berkman et al. 1986; Bruce 1999; Chiriboga et al. 2002; Murrell, Norris, and Hutchins 1984). Decline in physical health in particular is known to be one of the most common concerns and sources of stress in older populations (Berkman et al. 1986; Bruce 1999). However, little is known regarding whether these risk factors function in the same way and to the same extent across different racial and ethnic groups. Members of different racial and ethnic groups may not only have different levels of resources and stress exposures but also exhibit variations in how they are affected by risk factors.

Also relatively unexplored are the interactions between demographic and stressor variables. There is some evidence that the extent to which an individual is influenced by life stressors is conditioned by his or her demographic profile, including age, gender, and income level. For example, although health constraints generally have negative mental health consequences, those who are "young old" and women exhibit greater depressive symptomatology in the presence of health problems than their counterparts (e.g., Jang et al. 2005; Johnson 1994; Keyes 2004; Martin et al. 2001). Similarly, it has been suggested that those who are economically disadvantaged may be particularly vulnerable to stressors (Chiriboga et al. 2002). Because certain demographic characteristics may intensify or reduce the

impact of stressors, we attended to interactions between demographic variables and stressful life conditions. Exploration of the interactive role of predictive variables can identify not only subgroups at particular risk but also risk-enhancing or risk-reducing factors, which are relevant to the development of prevention and intervention programs.

In sum, the goal of the present analysis was to identify significant factors for depressive symptoms among four racial and ethnic groups of elders: Whites, African Americans, Cubans, and non-Cuban Hispanics. The predictive model of depressive symptoms included demographic characteristics (age, gender, marital status, education, and income) and stressful life conditions (chronic health conditions, functional disability, and negative life events). Both direct and interactive roles of the predictive variables were explored as a way of addressing between-group difference and within-group variability. The findings of this study will facilitate better understanding of racial and ethnic groups by identifying group-specific risk factors and guide effective strategies for interventions by identifying risk-reducing or enhancing factors within each group.

Methods

Sample

The present study was based on data collected in a series of computer-assisted telephone interviews conducted in 2004 and 2005 under the auspices of the Survey of Older Floridians (SOF). Two different sampling frames were used to recruit Floridians aged 65 years and older. The first sampling frame was used to collect a statewide representative sample of 437 older adults. This statewide sample included 382 Whites, 37 African Americans, 15 Cuban Americans, and 3 non-Cuban Hispanics. All older adults who were members of one of these racial or ethnic groups had an equal chance of being sampled.

To recruit the racial and ethnic minority groups of interest, the second sampling frame targeted telephone exchanges with high proportions of older African Americans, Cubans, and other Hispanics. Persons from any of the three groups were acceptable, even if they did not represent the racial or ethnic minority group that had caused the exchange to be selected. In addition, because five hurricanes hit Florida between the statewide and group-specific samplings, it was decided to include an additional sample of older Whites drawn from the same areas as the minority groups. The oversampling framework yielded 323 African Americans, 313 Cubans, 238

other Hispanics, and 122 Whites. The two sampling frames combined included a total sample of 1,433 participants: 504 Whites, 360 African Americans, 328 Cubans, and 241 non-Cuban Hispanics.

Participants were selected on the basis of random-digit dialing. Inclusion criteria included being age 65 and older and being a member of one of the racial and ethnic groups of interest. If more than one individual in a household was aged 65 years or older, the interviewer asked to speak to the oldest member. An exclusionary criterion consisted of a score of five or over on the Short Portable Mental Status Questionnaire (Pfeiffer 1975), a level indicative of moderate impairment. All were given a choice of being interviewed in English or Spanish.

To calculate response rates, we used one of the formulas created by the American Association for Public Opinion Research (2000): Response Rate 3 (RR3). RR3 contrasts the total number of persons who agree to be interviewed with an estimate for the number of eligible respondents. As a basis for our calculations of RR3, we included refusals and no-contacts as well as those whose physical or mental capacity precluded participation. Using this calculation, the response rates were 62% for the statewide sample, 61% for the White subsample, and 55% to 57% for the remaining groups.

Measures

A short form of the Center for Epidemiologic Studies Depression Scale (CES-D; Andresen et al. 1994; Radloff 1977) was used to index depressive symptoms. The instrument contains eight negatively stated items and two positively stated items (reverse coded). The items ask how often symptoms, such as loneliness, feelings of fearfulness, and restless sleep, were experienced during the past week. Responses were coded on a 4-point scale. Although a clinical diagnosis of depression cannot be made, a score of 10 or higher on the CES-D is typically suggested as a cutoff for probable depression. The CES-D has been applied to a variety of racial and ethnic groups, including African Americans and Hispanics, and has demonstrated high validity and reliability (e.g., Krause and Liang 1992). The Spanish version of the CES-D has also shown to be valid and reliable (Gonzalez et al. 1995). Internal consistency was shown to be acceptable in the present samples: $\alpha = .75$ for Whites, $\alpha = .75$ for African Americans, $\alpha = .82$ for Cubans, and $\alpha = .84$ for non-Cuban Hispanics.

Stressful life conditions were broadly defined and included chronic strains (e.g., chronic health conditions and functional disability) and acute stressors (e.g., negative life events). Chronic health conditions were measured with a

checklist that asked respondents whether a doctor had ever told them that they had specific diseases or conditions, such as heart attack, stroke, high blood pressure, cancer, diabetes, and arthritis. A total count from the list of nine different diseases and conditions was used in the analyses.

Functional disability was measured with nine items from a composite measure of activities of daily living (Katz 1983) and instrumental activities of daily living (Lawton and Brody 1969). Respondents were asked whether they needed help with each of the activities on the list, with a yes-or-no response format. The potential range of total scores was zero (functional independence on all items) to nine (functional dependence on all items).

Negative life events were used as an indicator of acute stress. The list included four life events common in later years: financial problems, the onset of caregiving, illnesses or injuries of family members or friends, and the deaths of significant others. Participants were asked to report if certain events had occurred within the past year using a yes-or-no format.

Demographic information included age (in years), gender (male = 1, female = 2), marital status (not married = 1, married = 2), annual income ($0 to $5,000 = 1 to greater than $50,000 = 8), and education (grade school or less = 1, high school = 2, beyond high school = 3).

Results

Characteristics of the Sample

Descriptive information on the total sample and four racial and ethnic groups is summarized in Table 1 as well as results from the comparative analysis between Whites and each of the racial and ethnic groups. The mean age of the overall sample was 73.7 years (*SD* = 6.73 years), with a range of 65 to 96 years. About 65% were female, and 42% were married. Fewer than half (45.2%) had beyond high school education, and approximately one quarter had annual incomes greater than $30,000. Compared with Whites, the minority groups were consistently younger and had lower levels of education and income. A significant difference in gender and marital status was found only between African Americans and Whites. African American participants were more likely to be female and unmarried.

No difference in the number of chronic health conditions was found between minority groups and Whites; however, minority groups were significantly more likely to have functional disabilities. African Americans and non-Cuban Hispanics reported more negative life events than Whites.

Table 1
Sample Characteristics and Group Comparisons

Variable	Total Sample (N = 1,433)	Whites (n = 504)	African Americans (n = 360)	Cubans (n = 328)	Non-Cuban Hispanics (n = 241)
Age (years), *M* (*SD*)	73.7 (6.73)	74.9 (6.94)	73.1 (6.77)***	73.6 (6.64)**	72.1 (5.83)***
Women (%)	65.2	63.0	72.8**	60.7	64.7
Married (%)	41.8	46.3	29.1***	48.0	42.7
Beyond high school (%)	45.2	57.1	31.2***	41.7***	45.9***
Income higher than $30,000 (%)	25.9	43.4	18.4***	14.4***	16.8***
Chronic conditions, *M* (*SD*)	2.08 (1.29)	2.13 (1.30)	2.15 (1.24)	1.99 (1.34)	2.01 (1.28)
Functional disability, *M* (*SD*)	0.49 (1.20)	0.32 (1.10)	0.66 (1.41)***	0.53 (1.16)*	0.54 (1.10)*
Negative life events, *M* (*SD*)	1.19 (1.10)	1.08 (1.08)	1.30 (1.12)**	1.15 (1.08)	1.34 (1.12)**
Depressive symptoms, *M* (*SD*)	6.17 (5.86)	4.60 (4.73)	6.71 (5.63)***	7.64 (6.72)***	7.33 (6.67)***

Note: Comparative analysis (t or χ^2 test) was conducted by comparing each minority group with Whites.
*p < .05. **p < .01. ***p < .001.

The CES-D scores of the minority groups were consistently higher than those of Whites. Moreover, when the suggested cutoff score for the short-form CES-D was applied, 26% of African Americans, 32% of Cubans, and 30% of non-Cuban Hispanics fell within the category of probable depression, whereas the proportion of Whites was only 15%.

Regression Models of Depressive Symptoms

After ensuring the absence of collinearity by examining bivariate correlations (r values < .40) and variance inflation factor scores (<1.40), models of depressive symptoms were estimated for each racial and ethnic group. Hierarchical regression models were tested, with the entry order of predictors being (1) demographic variables (age, gender, marital status, education, and income), (2) stressful life conditions (chronic conditions, functional disability, and negative life events), and (3) an interaction term. There was a total of 15 potential two-way interaction terms between demographic variables and stressful life conditions. Each term was entered independently, in addition to the direct effect model, as a final step. In computing interaction terms, we used centered scores to avoid collinearity between direct effects and interaction terms.

The results of the series of hierarchical regression models are summarized in Table 2. The set of demographic variables explained 9% to 18% of the total variance in the four racial and ethnic groups. Lower income was

Table 2
Regression Models of Depressive Symptoms

		Whites		African Americans		Cubans		Non-Cuban Hispanics	
Step	Variable	*B* (*SE*)	ΔR^2	*B* (*SE*)	ΔR^2	*B* (*SE*)	ΔR^2	*B* (*SE*)	ΔR^2
1	Age	0.01 (0.04)	.09***	–0.07 (0.05)	.16***	–0.18 (0.08)*	.15***	–0.23 (0.09)*	.18***
	Gender	0.73 (0.54)		0.52 (0.79)		0.95 (1.07)		1.62 (1.26)	
	Marital status	–0.23 (0.58)		–1.12 (0.80)		–2.01 (1.06)		–0.61 (1.27)	
	Education	–0.67(0.46)		–1.26 (0.47)**		–0.82 (0.61)		–0.81 (0.69)	
	Income	–0.57(0.16)**		–0.64 (0.21)**		–0.97 (0.29)**		–0.91 (0.28)**	
2	Chronic conditions	0.65 (0.18)***	.14***	0.63 (0.27)*	.13***	1.04 (0.35)**	.19***	0.91 (0.41)*	.26***
	Functional disability	0.80 (0.24)**		0.95 (0.24)***		1.66 (0.46)***		2.78 (0.46)***	
	Negative life events	1.14 (0.21)***		0.65 (0.29)*		1.24 (0.42)**		1.36 (0.40)**	
3a	Age × Disability	—	—	–0.12 (0.04)*	.01*	–0.18 (0.09)*	.02*	—	—
3b	Age × Event	—	—	—	—	–0.14 (0.07)*	.02*	—	—
3c	Gender × Event	0.46 (0.21)*	.01*	—	—	—	—	—	—
3d	Gender × Chronic Conditions	—	—	0.56 (0.27)*	.01*	—	—	—	—
3e	Gender × Disability	—	—	0.56 (0.24)*	.02*	—	—	—	—
3f	Income × Event	—	—	—	—	—	—	–0.36 (0.18)*	.01*

*$p < .05$. **$p < .01$ ***$p < .001$.

identified as a common risk factor for depressive symptoms across the groups. We found lower education to be a significant predictor only among African Americans. Among both Cubans and non-Cuban Hispanics, younger participants were more likely to endorse depressive symptoms.

The second set of predictors, stressful life conditions, added 13% to 26% of explained variance to the model. All three indicators were found to be significant in all groups. Regardless of racial and ethnic group orientation, persons who had more chronic conditions, more functional disability, and more negative life events showed a greater vulnerability to depressive symptoms.

As a final step, each of the 15 possible interaction terms was separately entered. Table 2 presents only those that reached statistical significance. Each of these significant terms contributed from 1% to 2% of variance. Significance was found for Gender × Negative Life Event in the White sample; for Age × Functional Disability, Gender × Chronic Conditions, and Gender × Functional Disability in the African American sample; for Age × Functional Disability and Age × Negative Life Event in the Cuban sample; and for Income × Negative Life Event in the non-Cuban Hispanic sample.

Interpretation of Modifications Within Each Racial and Ethnic Group

For each of the significant interaction terms, further analyses were conducted. We stratified the sample into subgroups on the basis of the moderating factors and compared the correlations between predictive variables and depressive symptoms. Table 3 summarizes subgroup analyses within each racial and ethnic group. In the White sample, the correlation between negative life events and depressive symptoms was stronger in women than men. In the African American sample, the risk factors (chronic conditions and functional disability) were more strongly associated with depressive symptoms among women than men. The association between functional disability and depressive symptoms, in addition, was stronger in the younger African Americans than in their older counterparts. A significant modification by age was found in Cubans: Younger persons presented stronger linkages between the risk factors (functional disability and negative life events) and depressive symptoms. In the non-Cuban Hispanic sample, the connection between negative life events and depressive symptoms was particularly stronger among those with lower incomes.

Table 3
Correlation Coefficients With Depressive Symptoms in Subgroups of Moderating Factors

		Correlation Coefficients With Depressive Symptoms					
Race/Ethnicity	Variable	Men	Women	Younger Group	Older Group	Lower Income Group	Higher Income Group
Whites	Negative life events	.18*	.34***				
African Americans	Chronic conditions	.08	.17*				
	Functional disability	.27*	.37***	.43***	.17		
Cubans	Functional disability			.38***	.25**		
	Negative life events			.34***	.19*		
Non-Cuban Hispanics	Negative life events					.34**	.07

*$p < .05$. **$p < .01$ ***$p < .001$.

Discussion

Responding to the needs for research on the mental health of elders from racial and ethnic minority groups, in the present study, we explored issues related to depressive symptoms using a statewide sample of older Whites, African Americans, Cubans, and non-Cuban Hispanics. The major focus was on assessing differences or similarities in determinants of depressive symptoms across the four racial and ethnic groups. By identifying race-specific risk factors and exploring within-group variability, we sought to enhance understanding of the mental health of diverse groups of elders and suggest avenues for culturally sensitive interventions.

Mean level analyses revealed striking but expected differences between Whites and racial and ethnic minorities. The White sample was more likely to be older, a fact that may reflect their overall greater life expectancy and higher proportions in the over-65 age group (U.S. Census Bureau 2006). Ethnic minorities were more likely to be disadvantaged with respect to education and income compared with Whites. No differences were found in the number of chronic conditions, but a significantly greater level of functional disability was observed in the minority groups. Furthermore, African Americans and non-Cuban Hispanics were shown to have more negative life events than Whites. Consistent with previous studies showing poorer mental health status of minority older adults (e.g., Cochran et al. 1999; Dunlop et al. 2003), each of the racial and ethnic groups showed a significantly higher score on the CES-D than Whites. In particular, Cubans showed

the highest CES-D scores; approximately 32% of Cubans were in the category of probable depression.

In the regression models of depressive symptoms, several factors associated with higher levels of depressive symptoms were similar across all racial and ethnic groups: lower income, more chronic health conditions, greater functional disability, and more negative life events. Lower education was found to be significant only in African Americans. In Cuban and non-Cuban Hispanic samples, younger age was found to be associated with greater levels of depressive symptoms.

The present study included both chronic strains and acute stressors, and both types of stressors were found to pose a significant risk to mental health in all racial and ethnic groups. The adverse impacts of health constraints and negative life events on depressive symptoms have been observed in numerous studies with diverse populations (e.g., Berkman et al. 1986; Bruce 1999; Chiriboga et al. 2002; Murrell et al. 1984). The increasing propensity of health decline and exposure to life events accompanied with aging (e.g., reductions in income and the deaths of significant others) seem to make older individuals more vulnerable to diminished mental health regardless of race or ethnicity.

In addition to the direct-effects model, interactive effects between demographic variables and stressful life conditions were also examined, and the findings presented interesting within-group variability. White women were found to be more vulnerable to depressive symptoms in the face of negative life events compared with their male counterparts. The finding is consistent with previous studies showing higher proneness and sensitivity to life events, particularly network or interpersonal events, among women (Kendler, Thornton, and Prescott 2001; Turner and Avison 1989).

A similar but more pronounced pattern of gender variation was observed in the African American sample. The interaction terms of gender by health risks (the latter including both chronic conditions and functional disability) were found to be significant, and further analyses indicated that the detrimental effects of the health risks were greater for women than men. The greater vulnerability of women to depressive symptoms in the presence of risk factors has been observed in other studies with African Americans (e.g., Husaini et al. 1991; Jang et al. 2005). The findings call attention to the heightened need for prevention and intervention for African American women to maintain and promote their mental health.

There was an age difference in the impact of functional disability in the African American and Cuban samples. Younger members with disabilities were more likely to be depressed in both samples. Among Cubans, an additional age

modification was found in the relationships of negative life events with depressive symptoms. The negative impacts of life events were greater among younger individuals than older ones. The higher vulnerability to depression in the face of stressors among the young old can be interpreted as a greater resilience of individuals with advanced age in the minority groups. A similar age modification, that the young old are more susceptible to psychological distress under stressful life conditions than the old old, has been reported in a previous study with older Hispanics (Burnette and Mui 1997). The attenuated impact of life stress with advanced age can be considered in line with resilience of the old old (Johnson 1994; Martin et al. 2001), favorable perspectives of aging in minority cultures (Dilworth-Anderson and Burton 1999; Gibson 1986), and potential cohort differences. Also, the findings indicate needs for educational programs for the young old to assist them to make a positive adaptation with aging.

Income was involved in a significant interaction only for non-Cuban Hispanics. Among elders in the latter group, income not only had a direct effect but also modified the linkage between negative life events and depressive symptoms. The significant role of financial resources among Hispanic elders has been reported in previous studies (e.g., Angel et al. 2003; Chiriboga et al. 2002); our finding showed that lack of such resources increased the negative consequences of life events.

There are limitations of this study that should be attended to when interpreting findings. Foremost is the use of cross-sectional data, which limits inferences on temporal order between risk factors and depressive symptoms. We hope to better address the issue with longitudinal analyses of the second wave of the SOF. Also, with the geographic restrictions imposed by a Florida-only study, the generalizability of findings to overall elderly populations may be limited.

Despite the limitations, the findings enhance understanding of the mental health of diverse racial and ethnic groups of older adults. The higher levels of depressive symptoms observed among minority elders call attention to efforts to promote screening for depression among those populations. Also, strategies for effective detection of and treatment for depression need to be sought. Our findings identified African American women and younger Cubans as subgroups that are more vulnerable to depressive symptoms under certain conditions. In particular, the negative impact of life events was pronounced among female Whites and non-Cuban Hispanics with lower financial resources. Overall, the findings emphasize the point that within-group variability needs to be taken into consideration when developing and implementing services for older populations.

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