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ORIGINAL PAPER

Racial/Ethnic Differences in the Association Between Symptoms of Depression and Self-rated Mental Health Among Older Adults

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Abstract The study examined racial/ethnic differences in the association between symptoms of depression and self-rated mental health among older adults. Data came from the first wave of the National Social Life, Health, and Aging Project, a population-based study of non-institutionalized older adults aged 57 to 85. The sample consisted of non-Hispanic Whites (n = 2,110), Blacks (n = 509), and Hispanics (n = 304). The association between symptoms of depression and self-rated mental health was weaker among minority groups than that among non-Hispanic Whites. Tests of interaction effects showed that the predictability of depressive symptoms to self-rated mental health was substantially weakened among Blacks of advanced ages and Hispanics with multiple chronic conditions. The study explored potential sources of racial/ethnic differences in subjective reports of mental health and called attention to older minorities with advanced ages and cormorbid conditions in mental health services and interventions.

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Introduction

Despite the well-established body of literature demonstrating that self-rated health serves as a powerful indicator of health and well-being (Idler and Benyamini 1997; Ormel et al. 1998; Wolinsky and Johnson 1992), little attention has been paid to self-rated *mental* health (Fleishman and Zuvekas 2007; Mawani and Gilmour 2010; Shiovitz-Ezra et al. 2009). Recently an increasing number of national and international health surveys have included a single item asking "How would you rate your overall *mental* health?" (Fleishman and Zuvekas 2007; Mawani and Gilmour 2010; Shiovitz-Ezra et al. 2009). Studies using such data find that self-rated mental health is closely linked to physical and mental health outcomes (Fleishman and Zuvekas 2007; Jang et al. 2012), psychiatric disorders (Mawani and Gilmour 2010), and the use of mental health services (Kim et al. 2010; Zuvekas and Fleishman 2008). In reviewing the emerging literature on self-rated mental health, one interesting finding is that, compared to non-Hispanic Whites, racial/ethnic minorities show a lower association between self-ratings of mental health and other measures of mental health (Fleishman and Zuvekas 2007; Zuvekas and Fleishman 2008; Kim et al. 2011). The finding suggests that racial/minorities may be less likely to perceive mental health symptoms as indicative of disorders needful of professional attention. A failure to fully appreciate the significance of their symptoms may contribute to underutilization of mental health services.

For the present investigation, we examined racial/ethnic differences in the level of self-rated mental health and its correlates, using a nationally representative older adult

sample of non-Hispanic Whites, Blacks, and Hispanics. Particular attention was paid to the association between symptoms of depression and self-rated mental health. Based on the literature (Fleishman and Zuvekas 2007; Zuvekas and Fleishman 2008; Kim et al. 2011), it was hypothesized that the link between depressive symptoms and self-rated mental health would be weaker among minority groups than that among non-Hispanic Whites. The present study also explored within-group variations in the impact of depressive symptoms on self-rated mental health in each racial/ethnic group, by testing the interactions of depressive symptoms with demographic and physical health-related variables. The tests of interactions were designed to assess how the impact of depressive symptoms on self-rated mental health was modified by other factors, and therefore to identify sources of potential racial/ethnic differences.

Methods

Data

The data for this study came from the National Social Life, Health and Aging Project (NSHAP) Wave 1. The NSHAP is a population-based study of health, social life, and well-being among older Americans. In-home, in-person interviews were conducted in English and Spanish with a total of 3,005 nationally representative probability sample members of community-dwelling individuals aged 57–85 in 2005 and 2006. The sample in the NSHAP was selected from the national area probability sample conducted for the Health and Retirement Study (HRS). The HRS was oversampled by race/ethnicity and NSHAP was oversampled by gender and age to produce sufficient samples for Blacks and Hispanics and equal distributions by age and gender. In addition to a face-to-face interview that included a brief self-administered questionnaire, an in-home collection of a broad panel of biomeasures and a leave-behind questionnaire were administered (Inter-University Consortium for Political and Social Research 2008). In the present study, we used data from the face-to-face interviews with 2,913 respondents (2,109 non-Hispanic Whites, 504 Black, and 300 Hispanics). Due to insufficient sample size (n = 92), individuals whose race/ethnicity was other than non-Hispanic White, Black, and Hispanic were excluded. More information on sampling procedures and methods of the NSHAP is available elsewhere (e.g., O'Muircheartaigh et al. 2009).

Measures

Self-rated Mental Health

Participants were asked "How would you rate your overall mental health?" on a five-point response format; 'excellent' (1), 'very good' (2), 'good' (3), 'fair' (4), and 'poor' (5).

Depressive Symptoms

The 11-item short form of the Center for Epidemiologic Studies-Depression Scale (CES-D) (Kohout et al. 1993; Radloff 1977) rates how often symptoms such as restless sleep and feelings of sadness, loneliness, and being disliked by people were experienced during the past week on a four-point response format; 'rarely or none of the time' (0), 'some of the time' (1), 'occasionally' (2), and 'most of the time' (3). The total scores have a potential range of 0–33, with higher scores indicating greater levels of depressive symptoms. Cronbach's alpha of the scale was high in each of the racial/ethnic groups; $\alpha = .79$ for non-Hispanic Whites, $\alpha = .78$ for Blacks, $\alpha = .84$ for Hispanics.

Physical Health-Related Variables

These covered chronic conditions and functional disability. Participants were asked to report existing medical conditions diagnosed by a medical doctor. The list included eight conditions often found in older populations (arthritis; emphysema, chronic bronchitis or chronic obstructive lung disease; stroke; high blood pressure or hypertension; diabetes; any heart disease; any cancer other than skin cancer; and kidney disease). The total number of reported conditions was used in the analysis.

Functional status was assessed with the Activities of Daily Living scale (ADL) (Katz et al. 1963). For each of six activities (walking across a room; dressing; bathing/showering; eating; getting in and out of bed; and using the toilet), participants were asked to rate the level of difficulty on a four-point response format; 'no difficulty' (0), 'some difficulty' (1), 'much difficulty' (2), and 'unable to do' (3). The total scores could range from 0 (no functional disability) to 18 (severe functional disability). Cronbach's alpha of the scale was high in each of the racial/ethnic groups; $\alpha = .82$ for non-Hispanic Whites, $\alpha = .89$ for Blacks, $\alpha = .88$ for Hispanics.

Demographic Variables

Demographic information other than race/ethnicity included age (in years), gender (1 = male, 2 = female), marital status (1 = married, 2 = not married), and educational attainment (1 = ≤high school, 2 = >high school).

Analytic Strategy

Following the comparative analyses of the descriptive information and bivariate associations, predictive models

of self-rated mental health were estimated in the overall sample and each racial/ethnic group. Predictors were entered in successive steps: (1) demographic variables (age, gender, marital status, and education), (2) physical health-related variables (chronic conditions and functional disability), (3) depressive symptoms, and (4) an interaction term between depressive symptoms with other variables. There were a total of six potential two-way interaction terms between depressive symptoms and demographic and physical health-related variables, and each term was entered independently. Centered scores were used in computing interaction terms to minimize collinearity between direct effects and interaction terms (Aiken and West 1991). When a significant interaction was found, the predictability of depressive symptoms to self-rated mental health was compared among the subgroups stratified by the moderating factor. All analyses were performed using SPSS statistics version 21.

Results

Descriptive Information of the Sample and Study Variables

Table 1 shows descriptive information on the overall sample and three racial/ethnic groups, as well as the results from the comparative analysis between non-Hispanic Whites and each of the minority groups. The mean age of the overall sample was 69.3 (SD = 7.86) with a range from 57 to 85. About 52 % were female, and 40 % were currently unmarried. Approximately half of the sample had more than a high school education. Hispanic participants were younger, and Blacks were more likely to be female and unmarried than non-Hispanic Whites. Compared to non-Hispanic Whites, both groups of minorities had lower levels of education, more numbers of chronic conditions, and greater functional disability.

The CES-D scores of the minority groups were consistently higher than that of non-Hispanic Whites. When the suggested cutoff score ($\geq$9) was applied, 31.2 % of Blacks and 34.2 % of Hispanics fell within the category of probable depression, whereas the corresponding figure for the non-Hispanic Whites was 21 %. For the item on self-rated mental health, the proportions of individuals who rated their mental health as either 'fair' or 'poor' were substantially higher in minority groups (15.3 % of the Blacks and 21.8 % of the Hispanics vs. 9 % of the non-Hispanic Whites).

Bivariate Correlations with Self-rated Mental Health

In a bivariate level, all variables were correlated in the expected direction (results are not shown in tabular format). Regardless of race/ethnicity, poorer ratings of mental health were observed among those with a lower education, more numbers of chronic conditions, greater functional disability, and higher levels of depressive symptoms. In addition, among non-Hispanic Whites, advanced age, female gender, and unmarried status were correlated with negative ratings of mental health. A strong link between female gender and negative ratings was also observed in the Hispanics. The association between depressive symptoms and self-rated mental health was stronger among

Table 1 Sample characteristics and racial/ethnic group comparisons

Variable	M ± SD or (%)			
	Overall sample (n = 2,913)	Non-Hispanic Whites (n = 2,109)	Blacks (n = 504)	Hispanics (n = 300)
Age	69.3 ± 7.86	69.6 ± 8.02	68.9 ± 7.32	67.8 ± 7.42***
Gender (female)	(51.8)	(51.1)	(56.0)*	(49.3)
Marital status (not married)	(39.9)	(35.9)	(58.0)***	(36.8)
Education (>high school)	(49.9)	(56.7)	(35.6)***	(27.3)***
Chronic conditions	1.78 ± 1.28	1.74 ± 1.27	2.09 ± 1.27***	1.57 ± 1.25*
Functional disability	.79 ± 1.87	.68 ± 1.64	1.06 ± 2.33***	1.12 ± 2.35***
Depressive symptoms	5.54 ± 5.19	5.19 ± 4.94	6.30 ± 5.32***	6.82 ± 6.30***
Self-rated mental health	2.29 ± .99	2.19 ± .94	2.49 ± 1.07***	2.63 ± 1.04***
Excellent	(23.9)	(25.7)	(21.6)	(15.6)
Very good	(36.7)	(40.1)	(26.6)	(30.1)
Good	(28.0)	(25.3)	(36.5)	(32.5)
Fair	(9.6)	(7.8)	(11.3)	(19.5)
Poor	(1.8)	(1.2)	(4.0)	(2.3)

Comparative analysis (t or χ^2 test) was conducted by comparing each minority group with non-Hispanic Whites

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

non-Hispanic Whites ($r = .50$, $p < .001$) than that among either Blacks ($r = .33$, $p < .001$) or Hispanics ($r = .37$, $p < .001$), and these differences were statistically significant ($z = 4.17$, $p < .001$ for the comparison between non-Hispanic Whites and Blacks; $z = 2.61$, $p < .01$ for the comparison between non-Hispanic Whites and Hispanics).

Hierarchical Regression Models of Self-rated Mental Health

Results of the series of hierarchical regression models for the overall sample and each of the three racial/ethnic subsamples are summarized in Table 2. The set of demographic variables explained 3 to 6 % of the total variance of self-rated mental health across the groups. Lower education was a predictor of a poorer self-rated mental health across all groups being assessed. Advanced age was found to be a significant predictor only for non-Hispanic Whites, and female gender was for non-Hispanic Whites and Hispanics.

The second set of predictors, consisting of physical health-related variables, added 6 to 7 % of the variance to the models. Functional disability was a common predictor of poor ratings of mental health in all groups. Chronic condition was significant in all groups but Hispanics.

The entry of depressive symptoms made a substantial contribution to the predictive models. In all groups, the presence of symptoms of depression was linked to poorer ratings of mental health, but as would be expected from the bivariate associations, the predictability of depressive symptoms was highest in the non-Hispanic White group. The amount of variance explained by depressive symptoms in the non-Hispanic White sample was 17 % (95 % CI .07–.09). Neither of the R^2 values for the Black sample ($R^2 = .05$) and the Hispanic sample ($R^2 = .06$) overlapped with the CI for the non-Hispanic White sample, which indicates that depressive symptoms accounted for more variance in self-rated mental health for the non-Hispanic White sample compared to the two minority groups (Cohen et al. 2003).

As a final step, each of the six possible interaction terms was separately entered. Table 2 only presents the ones that reached statistical significance. Significance was found in depressive symptoms × age in the Black sample ($\beta = -.15$, $p < .001$) and depressive symptoms × chronic conditions in the Hispanic sample ($\beta = -.16$, $p < .01$). Each of these significant terms added 2 % of the variance explained.

Interpretation of Interactions within Each Racial/Ethnic Group

For each of the significant interaction terms, further analyses were conducted. We stratified the sample based on the moderating factors (e.g., Blacks by age and Hispanics by

Table 2 Hierarchical regression models of self-rated mental health

Step/variable		Overall sample			Non-Hispanic Whites			Blacks			Hispanics		
		β	t	ΔR2	β	t	ΔR2	β	t	ΔR2	β	t	ΔR2
1	Age	.02	.99	.05***	.06	2.64**	.03***	−.04	−.84	.06***	.02	.32	.06***
	Gender (female)	.05	2.76**		.05	2.18*		.05	1.19		.12	2.13*	
	Marital status (not married)	.05	2.98**		.04	1.78		.05	1.21		.04	.76	
	Education (> high school)	−.19	−.10.2***		−.13	−6.03***		−.24	−5.28***		−.21	−3.63***	
2	Chronic conditions	.11	6.12***	.06***	.13	5.97***	.06***	.10	2.15*	.06***	.05	.81	.07***
	Functional disability	.20	10.9***		.18	8.26***		.20	4.53***		.25	4.13***	
3	Depressive symptoms	.39	21.8***	.13***	.45	22.0***	.17***	.24	5.50***	.05***	.27	4.56***	.06***
4a	Depressive symptoms × Age							−.15	−3.72***	.02***			
4b	Depressive symptoms × Chronic conditions										−.16	−2.91**	.02**

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

Table 3 Predictability of Depressive symptoms on self-rated mental health in subgroups by a moderating factor

Race/ethnicity	Subgroups by a moderating factor	Predictability of depressive symptoms on self-rated mental health	
		β	t
Blacks	Age 57–64 (n = 165)	.45	6.36***
	Age 65–74 (n = 208)	.22	3.03**
	Age 75–85 (n = 131)	−.01	−.16
Hispanics	No chronic conditions (n = 71)	.43	3.98***
	1–2 chronic conditions (n = 162)	.29	3.59***
	3+ chronic conditions (n = 68)	.08	.59

Statistical values were obtained from regression analyses conducted with each of the subgroups after controlling for demographic variables (age, gender, marital status, and education)

** $p < .01$, *** $p < .001$

the number of chronic conditions) and compared the predictability of depressive symptoms on self-rated mental health in the subgroups. Table 3 summarizes subgroup analyses within each racial/ethnic group. Within Blacks, the predictability of depressive symptoms was highest in the youngest group and much reduced in the older age groups. A similar pattern was observed in the subgroups of Hispanics by chronic conditions. Among Hispanic participants with no chronic conditions, depressive symptoms were strongly predictive of self-rated mental health. However, its impact was attenuated in the groups with chronic conditions. It is notable that the impact of depressive symptoms on self-rated mental health was non-significant in Blacks of most advanced age (75 to 85) and in Hispanics with more than three cormorbid conditions.

Discussion

An increasing body of literature supports the validity of the single item of self-rated mental health (Fleishman and Zuvekas 2007; Mawani and Gilmour 2010; Shiovitz-Ezra et al. 2009; Jang et al. 2012; Zuvekas and Fleishman 2008). Although it cannot serve as a substitute for comprehensive screening or diagnostic tools for mental disorders (Fleishman and Zuvekas 2007; Mawani and Gilmour 2010), self-rated mental health has gained prominence as a brief but viable indicator of overall mental health status. However, recent findings, that racial/ethnic minorities have a lower association between self-rated mental health and other measures of mental health than non-Hispanic Whites (e.g., Fleishman and Zuvekas 2007), suggest potential racial/ethnic differences in the ways that mental health problems are perceived. Because the differences in subjective perceptions of one's mental health status may be sources of racial/ethnic disparities in mental health care, the present study was designed to further explore this issue.

The facts, that the NSHAP included items on self-rated mental health and symptoms of depression and that it oversampled racial/ethnic minorities, provided a unique opportunity for the present investigation. Supporting the literature suggesting older minorities' vulnerability to mental health problems (US Department of Health and Human Services 2001), both Blacks and Hispanics were found to have higher scores of depressive symptoms and poorer ratings of self-rated mental health, compared to their non-Hispanic White counterparts. As hypothesized, the association between symptoms of depression and self-rated mental health was shown to be weaker among minority groups than that among non-Hispanic Whites. Multivariate analyses confirmed the findings from bivariate analyses.

Of particular relevance to the investigation were potential group variations in the predictive roles of depressive symptoms. Our tests of interactions between depressive symptoms and demographic and physical health-related variables yielded useful information on how the link between depressive symptoms and self-rated mental health was altered by other factors. Significance was obtained in the interactions between depressive symptoms and age in Blacks and between depressive symptoms and chronic conditions in Hispanics, and further analyses revealed that the predictability of depressive symptoms to self-rated mental health was substantially weakened among Blacks of advanced ages and Hispanics with multiple chronic conditions. It is notable that all analyses were conducted after controlling for potential confounding variables including educational attainment.

One possible reason for the above findings may be different perceptions and beliefs of depression across/within groups. The weakened association between symptoms of depression and self-rated mental health observed in Blacks with advanced age may have to do with the cultural misconception that attributes depression to part of aging (Sarkisian et al. 2003; National Mental Health Association 1996; Jang et al. 2011). Also, the somatization of depression (Angel and Guarnaccia 1989; Lewis-Fernandez et al. 2005) may help explain why Hispanics with multiple chronic conditions were less likely to report poor mental health status when they experienced symptoms of depression. Due to these cultural tendencies and misconceptions, it is possible that symptoms of depression may not be necessarily perceived as mental health issues for Blacks of advanced ages and Hispanics with multiple chronic conditions.

Some limitations of the present study should be noted. First, the causal inferences made in the present study are

limited due to the nature of cross-sectional data. Also, both measures of depressive symptoms and ratings of mental health were based on self-reports. Future studies should consider the use of diagnostic measures of mental health and longitudinal designs. Finally, it should not be ignored that the responses to both depressive symptom measure and self-rated mental health may be subject to cultural biases.

Despite these limitations, the present study explored potential sources of racial/ethnic differences in subjective reports of mental health and identified subgroups that require further attention. Given that understanding the implications of symptoms is an initial step in help seeking for mental health care (Pescosolido 1999), efforts to promote community mental health interventions should focus on minority older adults.

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