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Racial/Ethnic Differences in Predictors of Mental Health Treatment in Persons with Comorbid Diabetes and Depression

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ABSTRACT

Diabetes and depression are two of the most frequently diagnosed health conditions in the United States and often co-occur. The present study examines racial/ethnic differences in predictors of mental health service use among a national sample of African Americans, Hispanics, and non-Hispanic Whites with a self-reported diabetes and depression diagnosis. Multiple logistic regression was used to analyze a cross-sectional sample ($N = 3377$) of the 2012 National Health Interview Survey (NHIS), a nationally representative, cross-sectional survey. African Americans were less likely to have visited a mental health professional in the last 12 months (odds ratio [OR] = .634, confidence interval [CI] [0.429, 0.911]). Significant odds ratios also uncovered results for the "never married" (OR = 1.737, CI [1.322, 2.281]) category. Also for the entire sample, being 55 years or older (OR = .352, CI [0.234, 0.533]) was found to be strongly associated with mental health service use for individuals with diabetes. Being unemployed or not in the labor force increased the odds of mental health service use in persons with diabetes and depression, whereas having less than a high school diploma or Graduate Equivalency Diploma decreased odds of visits (OR = .611, CI [0.394, 0.945]) as did not having health insurance (OR = .540, CI [0.365, 0.800]). Racial/ethnic variation in mental health service utilization exists among persons with self-reported diabetes and depression. Due to the challenges associated with comorbid depression and diabetes, as well as the impact depression can have on diabetes self-management, it is imperative that more strategies for managing both depression and diabetes be explored.

Introduction

Diabetes and depression are two of the most frequently diagnosed health conditions in the United States and often co-occur (Gonzales et al., 2008). The Centers for Disease Control and Prevention (CDC; 2014) reports that 29.1 million people or 9.3% of the population have a diabetes diagnosis. African Americans (13.2%) and Hispanics (12.8) have the highest rates of age-adjusted diabetes compared to 7.6% of non-Hispanic Whites (CDC, 2014). National data show that about 15% of adults in the United States will experience a major depressive episode at some point in their life (Kessler et al., 2007). Diabetes is associated with a significantly increased prevalence and risk for clinical depression and depressive symptoms (Ali, Stone, Peters, Davies, & Khunti, 2006; Anderson, Freedland, Clouse, & Lustman, 2001; Li, Ford, Strine, & Mokdad, 2008; Rotella & Manucci, 2013).

Depression also significantly increases the risk of mortality among individuals with diabetes (Park, Katon, & Wolf, 2013). Persons diagnosed with comorbid diabetes and depression frequently exhibit poorer health management, lower quality of life, and increased diabetes-related complications than

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persons with one or the other diagnosis only (Ciechanowskli, Katon, Russo, & Hirsch, 2003; Goldney, Phillips, Fisher, & Wilson, 2004; Katon, 2003; Ludman et al., 2004). The problem of comorbid diabetes and depression among African Americans and Hispanics deserves attention because of the lack of research on the deleterious effects that both can impose on one's quality of life and disease management abilities. This study uses a national sample of African Americans, Hispanics, and non-Hispanic Whites to examine racial/ethnic differences in predictors of mental health treatment for persons with diabetes and depression.

The course of depression in patients with diabetes is often chronic and severe (Campayo, Gómez-Biel, & Lobo, 2011). *Depression* can be defined as a serious emotional and biological disease that affects one's thoughts, feelings, behavior, mood and physical health (National Association of Mental Illness [NAMI], 2013). African Americans and Latinos typically experience lower rates of depression compared to their non-Hispanic White counterparts. However, high rates of comorbid depression have been reported in patients with diabetes, often creating treatment barriers within primary care settings (Gonzales et al., 2008). However, depression remains unrecognized and untreated in approximately two thirds of patients with diabetes despite the important clinical implications associated with comorbid conditions (Sorkin et al., 2011). Even with successful treatment as many as 80% of patients with diabetes will experience a depression relapse, often leading to a more pronounced expression of depression (Egede, 2005). Because the presence of depressive symptoms are so strongly associated with nonadherence to diabetes self-care regimens (Gonzales et al., 2008), additional studies are needed to better understand racial/ethnic differences in predictors of mental health care use among individuals living with a diabetes diagnosis and comorbid depression diagnosis.

Access to health services has an important role in managing diabetes and related mental health problems such as depression. Although the literature is growing in its ability to explain racial differences in health care access, it does not provide a singular or clear understanding for treatment among racially diverse groups who suffer from comorbid conditions (Roy & Lloyd, 2012). Moreover, the lack of clarity on access and diagnosis of comorbid physical and mental health conditions calls for more research to promote health service utilization among African Americans and Hispanics living with comorbid diabetes and depression.

Diabetes and depression

The incidence of depression in people with diabetes is higher than those who do not have the condition (Dismuke & Egede, 2010). The likelihood of someone with diabetes having comorbid major depressive disorder is almost 60%, and the likelihood of them having comorbid generalized anxiety disorder is well over 100% (Egede et al., 2014). Among people with diabetes, depression is widespread and symptoms can be exacerbated by unhealthy lifestyle choices such as smoking, physical inactivity, poor diet, and substance abuse (Blixen et al., 2015). Depression has also been linked to consistently higher hemoglobin A1c levels among persons with diabetes (Egede & Dismuke, 2012). Depression can also negatively affect diabetes-related clinical encounter, self-management of the condition, as well as obtaining access to specific health care options (Frayne et al., 2005).

Diabetes accompanied by a severe mental disorder also places an added burden, compounding the challenges associated with diabetes self-care including monitoring blood glucose, lifestyle behavior change, and medication adherence (Arnoldy, Curtis & Samaras, 2013). Research has shown that improved mental health can lead to improved diabetes control (Kreyenbuhl et al., 2010). Although depression was not studied specifically, a study from Kreyenbuhl et al. (2010) found improved adherence to treatment plans in patients with diabetes and a mental health condition than in those with diabetes alone. Further, the Veterans Health Administration (VHA) system uses a model of care that has also shown improved health outcomes. VHA have long supported the concept of coordinated care, placing mental health professionals within primary care settings to offer better care for those living with diabetes and mental illness (Long et al., 2014). However, this model of coordinated care within the

VHA is not the norm for individuals living with comorbid diabetes and mental illness outside of the VHA system (Long et al., 2014).

Prior work has shown the relationship between diabetes and mental disorders result not only in poor health outcomes, but also in an increase in health care dollars spent (Frayne et al., 2005). In 2012, the total cost of diabetes was estimated to be $245 billion and for persons with diabetes medical expenditures are 2.3 times higher than expenditures for persons without the disease (American Diabetes Association, 2013). With the passage of the Affordable Care Act it is important to determine if racial/ethnic disparities in access to mental health care exist for persons with diabetes and depression.

Racial/ethnic differences in mental health care utilization

Prior studies have reported that racial-ethnic minorities, such as African Americans and Hispanic Americans, tend to underutilize mental health services compared to non-Hispanic Whites (Kim et al., 2014). Disparities in the utilization of outpatient and supplemental services by African Americans and Hispanic Americans suggest a larger need for care (Delphin-Rittmon et al., 2015). Underutilization of mental health services among racial-ethnic populations is often due to how the services are sought out and high attrition rates. In a 2015 study examining inequities to mental health care access, Hispanic Americans were considerably less likely to self-admit to inpatient services and were more likely to utilize inpatient services through emergent care sources compared to African Americans and non-Hispanic Whites (Delphin-Rittmon et al., 2015). Previous research shows that African Americans are less likely to utilize outpatient mental health services than non-Hispanic Whites, with older African Americans more likely to seek mental health services in primary care settings (Neighbors et al., 2008). Additionally, there are numerous barriers to seeking care and completing a treatment program unique to Hispanic Americans including language and culture barriers, immigration status, and availability of culturally competent mental health providers (Delphin-Rittmon et al., 2015). Further, provider bias in the diagnosis and treatment of mental health issues often is a deterrent for African Americans to seek mental health care services (Diala et al., 2001). In the event of poor diabetes control accompanied by mental illness, the prospective burden of poor overall health in racial-ethnic minorities can contribute to a drastically shortened life expectancy (Arnoldy et al., 2013). However, racial/ethnic differences in utilization of mental health treatment among persons with a comorbid diabetes and depression diagnosis have not been studied extensively in the literature. Therefore, the goal of this study was to identify racial/ethnic differences in predictors of mental health service use among a national sample of African Americans, Hispanics, and non-Hispanic Whites with a diabetes and depression diagnosis.

Method

Sample

This study uses a cross-sectional sample of the 2012 National Health Interview Survey (NHIS). NHIS is a nationally representative, cross-sectional survey conducted annually by the National Center for Health Statistics at the U.S. Department of Health. The primary aim of NHIS is to examine trends in health status (illness and disability), health care, and health behaviors among noninstitutionalized individuals in the United States. Face-to-face interviews were conducted with all members of households sampled with one adult randomly selected for inclusion in the Sample Adult File. For the present study, after restricting the sample to observations for persons with diabetes and depression, the sample size included Hispanic, African American, and non-Hispanic White for a total of 3,377. Diabetes and depression were self-reported using the following measures, "Doctor ever told has a diabetes diagnosis" and "doctor ever told has a depression diagnosis."

Measures

Dependent variables

This study sought to examine racial/ethnic differences in predictors of mental health treatment for diabetes and depression. Therefore, the primary outcome for the study was whether respondents reported seeing a mental health care professional. The item *saw a mental health professional* was used to determine this and was measured by whether respondents saw a mental health professional in the past 12 months. Response options were dichotomized to (0) did not see, or (1) saw.

Independent variables

Race/ethnicity was the primary independent variable because we were especially interested in the racial and ethnic differences across the sample. Racial/ethnic identity was coded as (0) non-Hispanic White, (1) African American, and (2) Hispanic.

Other covariates

Additional sociodemographic measures in this study were those that tend to be associated with mental health care use in the literature and included income coded as (0) $0 to $34,999, (1) $35,000 to $74,999, and (2) $75,000 and over; age (0) 18 to 30, (2) 31 to 54 and (3) 55 and older. Socioeconomic status was assessed by the following measures: education coded as (1) less than high school, (2) high school but less than BA/BS, and (3) greater than BA/BS); employment status, coded as (1) unemployed, (2) not in labor force, and (3) employed; marital status coded as (1) single, (2) married, or (3) living with partner; and lastly health insurance status coded as (1) covered or (2) not covered.

Analysis

To compare sociodemographics by gender, a *t* test was used for continuous variables, Fisher's exact test was used for categorical variables with expected count under 5 in any cell, and Pearson's chi-square test was used for all other categorical variables. Multiple logistic regression models examined if race/ethnicity influenced seeing a mental health professional among persons diagnosed with diabetes and depression, adjusting for sociodemographic covariates. Statistical analyses were performed using Stata software, version 13 (StataCorp. 2013). The present study is exempt from the internal review board process because it uses a secondary data source.

Results

Demographic characteristics among African Americans, Hispanics, and non-Hispanic Whites with diabetes and depression ($N = 3,377$) are presented in Table 1. Non-Hispanic Whites reported the highest percentage of respondents who received mental health services at 18%, whereas Hispanics had the lowest percentage at 12%. Of African Americans 15% reported seeing a mental health professional in the last 12 months. Hispanics reported the highest percentage of uninsured overall at 35%, as did African Americans (18%). In contrast, non-Hispanic Whites reported the highest enrollment in insurance (85%). Non-Hispanic Whites (28%) and African Americans (15%) reported the highest percent of respondents with a BA/BS or more, whereas Hispanics reported the highest percentage with less than a high school diploma/Graduate Equivalency Diploma (GED) (37%). Non-Hispanic Whites (52%) and Hispanics (49%) reported the highest number of married and African Americans had the highest percentage of never being married at 60%. In terms of sex, a majority of the sample was female (57% non-Hispanic White, 61% African American, 55% Hispanic).

Table 1. Sample Characteristics, Adults Age 18 and Older with Comorbid Diabetes and Depression (N = 3377).

Dependent measure	Non-Hispanic White	Non-Hispanic Black	Hispanic	p Value
Saw mental health last 12 months, % (n)				0.01
No	82 (1768)	85 (429)	88 (492)	
Yes	18 (395)	15 (78)	12 (65)	
Demographic characteristics				
Sex, % (n)				0.30
Male	43 (871)	39 (185)	45 (218)	
Female	57 (1292)	61 (322)	55 (339)	
Age, % (n)				0.00
18–30	21 (365)	18 (71)	25 (124)	
31–54	41 (841)	48 (225)	50 (283)	
55 and older	38 (957)	33 (211)	25 (150)	
Nativity status, % (n)				0.00
Non-U.S. born	5 (104)	8 (36)	62 (344)	
U.S. born	95 (2059)	92 (471)	38 (213)	
Marital status, % (n)				0.00
Not married	41 (1130)	60 (364)	43 (298)	
Married	52 (898)	33 (122)	49 (213)	
Cohabitating	8 (135)	7 (21)	8 (46)	
Socioeconomic status				
Employment Status, % (n)				0.02
Unemployed	7 (136)	12 (58)	9 (53)	
Employed	55 (1121)	47 (215)	55 (293)	
Not in labor force	37 (906)	41 (234)	35 (211)	
Education status, % (n)				0.00
Less than high school (HS)/Graduate Equivalency Diploma (GED)	12 (257)	21 (124)	37 (229)	
HS diploma/GED	25 (562)	28 (146)	26 (140)	
More than HS less than bachelors of arts (BA)/ bachelors of science (BS)	34 (743)	36 (172)	26 (131)	
BA/BS or more	28 (601)	15 (65)	11 (57)	
Household income, % (n)				0.00
$0–$34,999	35 (968)	56 (335)	55 (362)	
$35,000–$74,999	31 (653)	25 (116)	31 (140)	
$74,999 and above	33 (542)	19 (56)	14 (55)	
Insurance status, % (n)				0.00
Uninsured	15 (310)	18 (93)	35 (203)	
Insured	85 (1853)	82 (414)	65 (354)	

Note. All analyses were weighted.

Mental health service use among persons with diabetes and depression

Table 2 shows rates of depression and diabetes for each racial group. Diabetes and depression rates were highest for non-Hispanic Whites (43%) and African Americans (41%). Hispanic respondents reported the lowest rate of diabetes and depression for men and women at 36%; these rates were also statistically significant.

Impact of race/ethnicity on mental health service use

Logistic regression was used to determine odds of mental health service use by race/ethnicity controlling for demographic characteristics for the overall sample (Table 3). The sample size for the

Table 2. Rate of Diabetes and Depression by Race/Ethnicity.

	Non-Hispanic White	Non-Hispanic Black	Hispanic	p Value
				0.00
Yes	43 (2163)	41 (507)	36 (557)	
No	57 (2722)	59 (648)	64 (797)	

Note. All analyses were weighted.

Table 3. Ordinary Least Squares Regression Coefficients: Visit with Mental Health Professional in Last 12 months among Men and Women Age 18 and Older with Comorbid Diabetes and Depression ($N = 3377$).

Saw Mental Health Professional	Odds Ratio [confidence interval]	p Value
Race/Ethnicity		
Non-Hispanic Black	0.625* [.429, .911]	0.015
Hispanic	0.765 [.511, 1.14]	0.192
Non-Hispanic White		
Age		
18–30		
31–54	1.119 [.812, 1.542]	0.491
55 and older	0.352** [.233, .533]	0.00
Marital status		
Not married	1.737** [1.322, 2.281]	0.00
Married		
Cohabitating	1.420 [.891, 2.265]	0.14
Sex		
Female	1.103 [.844, 1.442]	0.472
Male		
Employment status		
Unemployed	2.287** [1.494, 3.500]	0.00
Employed		
Not in labor force	2.252** [1.610, 3.150]	0.00
Education Status		
Less than high school (HS) diploma/Graduate Equivalency Diploma (GED)	0.611* [.394, .945]	0.027
HS Diploma/GED		
More than HS less than bachelors in arts (BA)/bachelors in science (BS)	1.014 [.721, 1.425]	0.936
BA/BS or more	1.244 [.847, 1.825]	0.264
Household income		
$0–$34,999	1.304 [.895, 1.899]	0.166
$35,000–$74,999	0.907 [.625, 1.318]	0.608
$74,999 and above		
Insurance status		
Uninsured	0.540** [.365, .800]	0.002
Insured		
Nativity status		
Non-U.S. born	0.622# [.368, 1.052]	0.076

Note. Comparison groups included: non-Hispanic White, age 18–30, married, male, employed, HS diploma/GED, income $74,999 and above, insured and U.S. born. Binary outcome, logistic regression.
#$p < .1$. *$p < .05$. **$p < .001$.

multivariate logistic regression was 3,377. Using a cut-off point of $\alpha \leq .05$ to determine statistical significance, race/ethnicity, marital status, age, employment status, education, and insurance status were found to be statistically significant in determining odds of mental health service use for men and women with diabetes and depression. African Americans were less likely to have visited a mental health professional in the last 12 months (odds ratio [OR] = 0.634, confidence interval [CI] [0.429, 0.911]). Significant odds ratios also uncovered results for the never married (OR = 1.737, [1.322, 2.281]) category. For the entire sample, being 55 years or older (OR = .352, CI [0.234, 0.533]) was found to be strongly associated with mental health service use for individuals with diabetes. Being unemployed or not in the labor force increased the odds of mental health service use in persons with diabetes and depression, while having less than a high school diploma or GED decreased odds of visits (OR = .611, CI [0.394, 0.945]) as did not having health insurance (OR = .540,CI [0.365, 0.800]).

Discussion

We examined racial/ethnic differences in predictors of mental health service use among a national sample of African Americans, Hispanics, and non-Hispanic Whites with a self-reported diabetes and depression diagnosis. The current study complements and extends the existing literature on racial and ethnic differences in mental health service use through examining rates of service utilization among an ethnically diverse sample of men and women with self-reported diabetes and depression.

The results from this study were consistent with other studies suggesting that African Americans have lower rates of mental health service use (Alegria et al., 2002; Neighbors et al., 2008). The current study found that African American men and women with a diabetes and depression diagnosis were less likely than non-Hispanic Whites with the same diagnosis to have visited a mental health professional in the last 12 months, even after controlling for covariates. A growing body of literature suggests that racial and ethnic minorities in the United States, particularly African Americans, are less likely than their White counterparts to access mental health services (Alegria et al., 2002; Chow, Jaffe & Snowden, 2003; Kimmerling & Baumrind, 2005). One possible explanation for this difference is that African Americans may hold mistrust for the medical system in general (LaVeist, Nickerson, & Bowie, 2000) or may have experienced racism in clinical encounters, which prevents them from utilizing health services (LaVeist et al., 2000).

Racial and ethnic differences in utilization of specialty mental health services may also be partially explained by socioeconomic status (SES) and environmental context (Butterworth, Olesen, & Leach, 2012; Jefferis et al., 2011). Specifically, income-related disparities in access to health care also place individuals with diabetes at high risk for depression (Nash, 2014). Further, cultural differences in perceived need and the recognition of health problems among racial and ethnic minorities may also help to account for differences in service use compared to non-Hispanic Whites (Alegria et al., 2002). Because treatment for a mental health problem can have such deleterious effects on glycemic control, more research is needed to explore how cultural context and racial/ethnic background may influence mental health service use among ethnic minorities, particularly among those living with a diabetes and depression diagnosis.

Similar to previous work (Alegria, Bijl, Lin, Walters, & Kessler, 2000; Macintyre, MacIver, & Sooman, 1993; Snowden, 1999), the current study also shows that social position and environmental factors such as having less than a high school diploma or GED and being uninsured decreased receipt of mental health services in a sample of men and women with a self-reported diabetes and depression diagnosis.

Limitations

There are a few limitations that should be considered when interpreting the findings from this study. For example, because the data used in this study are cross-sectional, we could not provide explicit information about cause-and-effect relationships between race, ethnicity, and mental health service use among persons with diabetes and depression. This study also could not control for stigma associated with mental health issues, which may have led to under reporting of mental health symptoms and utilization of services. Similarly, this study did not control for perceived quality of care from health care systems, which may also affect racial/ethnic and other differences in the use of mental health care. Additionally, our measure for diabetes also did not differentiate between different forms of the disease, potentially limiting our understanding of how different forms of diabetes and comorbid depression may influence mental health care use. Further, this study did not account for the presence of other chronic conditions. Future research should examine the impact of the presence of more than one chronic illness on depression rates and mental health care use among persons with diabetes. Finally, language and cultural barriers could have resulted in misinterpretation of survey questions and interpretation of/or responses to this question may have been different depending on the respondent's racial/ethnic background. Despite these limitations, this study extends the existing literature on racial and ethnic differences in mental health service use through examining rates of service utilization across race and ethnicity.

Conclusion

This study demonstrates variation in the use of mental health care based on race/ethnicity for persons living with a self-reported diabetes and depression diagnosis. Due to the challenges associated with

comorbid depression and diabetes, as well as the impact depression can have on diabetes self-management, it is imperative that more strategies for managing depression and diabetes be explored. The current study reports the findings from nationally representative sample where a large percent of persons with diabetes also reported having depression. Future research should consider the integration of mental health and diabetes-related health care to improve the health management and health outcomes of those living with comorbid depression and diabetes.

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