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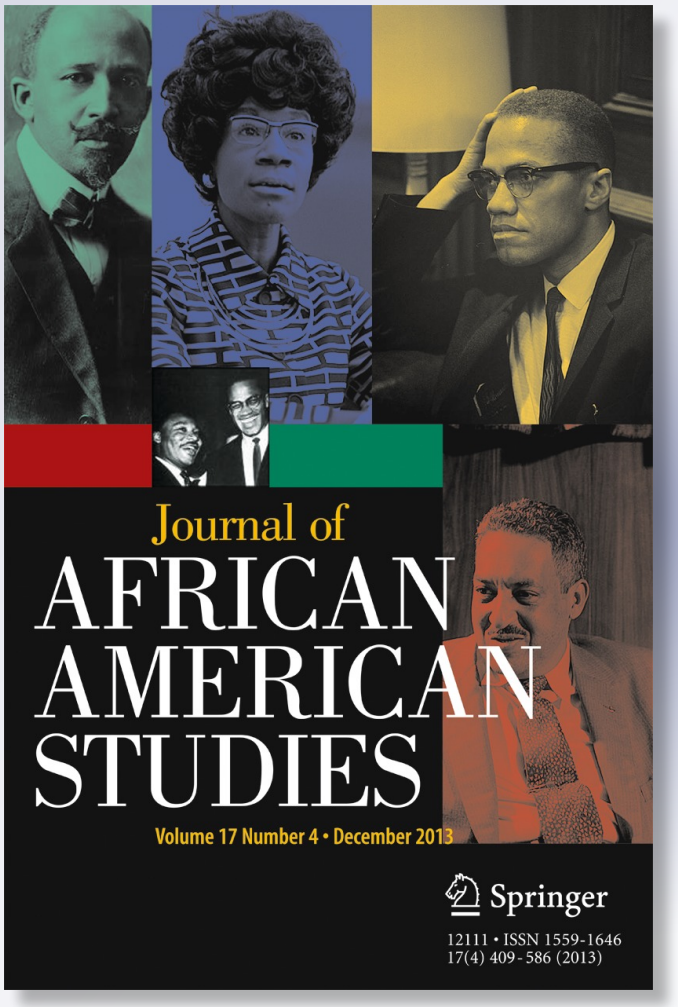

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ARTICLES

Comorbid Mood and Anxiety Disorders, Suicidal Behavior, and Substance Abuse Among Black Caribbeans in the U.S.A.

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Abstract The purpose of this study was to examine nativity and country of origin differences in comorbid mood (major depressive disorder, dysthymia, and bipolar I and II disorders) and anxiety (post-traumatic stress disorder, panic disorder, agoraphobia, social phobia, generalized anxiety disorder, and obsessive compulsive disorder) disorders among Black Caribbeans in the U.S.A. The paper also examines the relationship between comorbid psychiatric disorders and substance abuse disorders and suicidal behavior. Data are taken from the Black Caribbean sub-sample (N= 1,621) of the National Survey of American Life. Multinomial logistic regression and logistic regression analysis are used and odd ratios, relative risk ratios, and 95 % confidence intervals are presented. Seven percent (7.19 %) of respondents had comorbid mood and anxiety disorders, 8.66 % had a mood disorder only, and 11.46 % had an anxiety disorder only. First-generation Black Caribbeans were less likely than US-born respondents to have a lifetime mood or anxiety disorder and also less likely to have a lifetime substance disorder or a lifetime suicidal attempt. Black Caribbean men were more likely than Black Caribbean women to: (1) have anxiety disorders only versus neither mood or anxiety disorders, (2) to have a substance disorder, and (3) to have had a suicidal attempt. Lastly, Black Caribbeans with both mood and anxiety disorders have significantly higher rates of mental health services utilization. These and other findings are discussed in detail.

Keywords Afro-Caribbean · West Indians · Mental health · Mental illness · Depression · Suicide · Psychiatric disorder

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Introduction

This study examines nativity and country of origin differences in comorbid psychiatric disorders among Black Caribbeans and the relationship between comorbid psychiatric disorders and substance abuse disorders and suicidal behavior. This investigation contributes to a small but emerging literature on mental health among this population. The literature review begins with a discussion of Black Caribbeans in the U.S.A., followed by research on immigration and mental health with a focus on psychiatric disorders among Black Caribbeans. Next, a discussion of mental health service utilization is provided, followed by research on comorbid psychiatric disorders.

Black Caribbeans in the U.S.A.

Black Caribbeans constitute a sizeable proportion of the immigrant population, representing 18 % of the foreign-born population (Acosta and de la Cruz 2011) and more than half of foreign-born Blacks (U. S. Census Bureau 2010). Caribbean immigrants reside largely in the Northeast region of the U.S.A. and make up 49 % of the immigrant population in New York, 45 % in Rhode Island, and 43 % in Massachusetts (Acosta and de la Cruz 2011). Despite their numbers, few studies have examined the social circumstances affecting this group, including their mental health status.

Immigration and Mental Health

Migration can be a particularly disruptive and stressful process that has been linked to depression (Miranda et al. 2005). Several potential factors explain the relationship between immigration and mental illness. Immigrants may experience culture shock—the experience of being uprooted and relocated from friends, family, and a familiar culture to a foreign country represents several significant losses (Bhugra 2003). The prolonged mourning and unresolved grief associated with these losses can lead to depression and anxiety. Culture conflict also contributes to increased rates of mental illness in the immigrant population (Bhugra 2003). Immigrants may have difficultly negotiating their dual cultural identities (i.e., home and host country cultural identities) and perceived conflicts between home and host country values and customs can lead to a sense of isolation and abandonment. Additionally, unmet achievement expectations (e.g., education, occupation, and income) following immigration may result in a decreased sense of personal mastery and lower self-esteem, which could lead to depression (Bhugra 2003).

Conversely, other studies indicate that immigration is associated with lower rates of mental illness for particular groups of immigrants (e.g., Latinos; Alegría et al. 2008; Grant et al. 2004; Vega et al. 2003). This finding is surprising because these groups often have risk factors such as socioeconomic disadvantage and poverty that are themselves associated with mental illness. Self-selection may be at work such that healthy persons are more likely to immigrate than mentally or physically ill

individuals (Markides and Coreil 1986). Alternatively, these immigrant groups tend to come from cultures that emphasize family relationships and have extended kinship support networks, which are protective against mental illness (Markides and Coreil 1986).

Current research shows that psychiatric disorders are more prevalent among Black Caribbean men than African American men (Williams et al. 2007), and Black Caribbean men are more likely to be diagnosed with mood disorders than African American men. In contrast, Black Caribbean women are less likely to be diagnosed with anxiety, substance, depressive, and any disorder relative to African American women (Williams et al. 2007; Miranda et al. 2005). With respect to anxiety disorders, Black Caribbeans have higher rates of generalized anxiety disorder, social anxiety disorder, post-traumatic stress disorder (PTSD), and panic disorder compared to African Americans, although these differences are not statistically significant (Himle et al. 2009).

Specifically looking at major depressive disorder (MDD), overall Black Caribbeans are more likely to have lifetime MDD than African Americans, with 12.9 % of Black Caribbeans suffering from MDD compared to 10.4 % of African Americans (Williams et al. 2007). However, when examining prevalence rates for women, Black Caribbean women are less likely to experience depression than African American women (Miranda et al. 2005). In contrast, Black Caribbeans (7.2 %) have lower 12-month prevalence rates of MDD than African Americans (10.4 %). The overwhelming majority of Black Caribbeans (95.7 %) diagnosed with MDD reported some role impairment or inability to carry out normal daily activities related to their depression and considered their impairments to be at least moderate in severity (Williams et al. 2007).

Suicide attempts are more prevalent among Black Caribbeans (5.1 %) than African Americans (4 %) (Joe et al. 2006); likewise, suicidal ideations are more prevalent among Black Caribbeans (12.3 %) than African Americans (11.7 %). Overall, Black Caribbean men are at a greater risk for suicide attempts and suicidal ideations than their female counterparts.

Mental Health Service Utilization

Nearly half (48 %) of the Black Caribbean population with a psychiatric disorder seek both professional and informal (e.g., family and friends) help for their illness (Woodward et al. 2008). Smaller proportions of Black Caribbeans suffering from mental illness sought help from informal sources only (15 %) or professional sources only (12 %); 25 % of the mentally ill Black Caribbean population did not seek help from either sources. Compared to African Americans, Black Caribbeans are less likely to utilize mental health services within a 12-month period (Neighbors et al. 2007) and are more likely to wait longer after initial onset of symptoms before seeking professional help (Cohen et al. 1997). In general, Black Caribbeans are less likely to seek mental health care from psychiatrists and are more likely to seek care from nonpsychiatric health professionals. Those who have lived in the U.S.A. for 21 years or more and third-generation Black Caribbeans have the highest rate of mental health service utilization. When they do seek help, a greater proportion of

Black Caribbeans than African Americans receive only minimally adequate treatment for their mental health concerns (Neighbors et al. 2007). In fact, Black Caribbeans are less likely to show clinical improvements after 6 months of treatment compared to African Americans (Cohen et al. 1997).

Comorbid Psychiatric Disorders

Comorbidity refers to the occurrence of, simultaneously or sequentially, and interaction between two or more psychiatric disorders. Comorbidity of psychiatric disorders has significant diagnostic and treatment consequences including diagnostic confusion, under-diagnosis, and differential treatment decisions due to the greater intractability of comorbid conditions. (NCCMH 2008). The ensuing dynamic between the two conditions is linked to negative consequences for the course and prognosis of each illness. Comorbid psychiatric disorders also have a negative impact on the physical health and social and economic functioning of those afflicted (McFarlane et al. 2004).

Epidemiologic studies indicate that comorbidity is common among individuals with mental illness. Many people suffer from more than one mental disorder at a given time. Nearly half of those with any mental disorder meet criteria for two or more disorders. The National Comorbidity Survey (Kessler et al. 2005) estimated that over 40 % of 12-month (active) cases were comorbid. Further, a large majority (79 %) of lifetime disorders were comorbid disorders. As Kessler and colleagues point out, even though psychiatric disorder is prevalent across the U.S. population, the bulk of the burden of these illnesses is concentrated in a relatively small but intensely comorbid sub group that represents approximately one sixth of the total population.

Severity and comorbidity are strongly linked. About half of all persons with a serious mental illness will also experience a comorbid substance disorder (Kessler et al. 2005). Individuals with a history of three or more disorders experience the vast majority of severe disorders. Thus, the dramatically skewed distribution of cooccurring disorders provides a potent clue to understanding serious mental illness. Well-documented demographic risk factors for lifetime comorbidity include lower socioeconomic position, martial disruption, and urbanicity. In contrast, generally older age is a protective factor against lifetime psychiatric comorbidity as is black versus white race-ethnicity.

Comorbid conditions are more chronic and challenging to treat (Kranzler and Liebowitz 1988), and are linked to higher rates of service utilization (Helzer and Pryzbeck 1988), particularly specialty sector treatment (Regier et al. 1990). The contribution of a second or third diagnosis, such as substance abuse or anxiety, may confound treatment for the primary disorder. Failing to assess the impact of comorbid disorders may even invalidate the treatment of the primary condition. Therefore, it is necessary to account for the impacts of all comorbid disorders and to formulate a treatment strategy that is designed to target not just the predominant diagnosis, but all pertinent factors (Wetzler and Sanderson 1997). Comorbidity among psychiatric illnesses is a critically important area where more research is needed, especially among under-researched minority groups such as Black Caribbeans.

Focus of the Paper

This investigation of comorbid psychiatric disorders among Black Caribbeans has several major goals. The first is to document the prevalence and correlates of comorbid psychiatric disorders. The second is to investigate the impact of comorbid disorders on substance abuse, suicidal attempts, and suicidal ideation. The third is to examine the impact of immigration status (foreign born and country of origin), age and gender on comorbid disorders as well as substance abuse, suicidal attempts, and suicidal ideation. Lastly, the paper will present information on the use of mental health services for comorbid psychiatric disorders among Black Caribbeans. To our knowledge, this is the first paper to investigate comorbid psychiatric disorders among Black Caribbeans in the U.S.A.

Methods

Sample

The National Survey of American Life: Coping with Stress in the 21st Century (NSAL) was collected by the Program for Research on Black Americans at the University of Michigan's Institute for Social Research. The NSAL sample has a national multistage probability design. The field work for the study was completed by the Institute of Social Research's Survey Research Center, in cooperation with the Program for Research on Black Americans. A total of 6,082 face-to-face interviews were conducted with persons aged 18 or older, including 3,570 African Americans, 891 non-Hispanic whites, and 1,621 Blacks of Caribbean descent.

The NSAL includes the first major probability sample of Black Caribbeans. For the purposes of this study, Black Caribbeans are defined as persons who trace their ethnic heritage to a Caribbean country, but who now reside in the U.S.A., are racially classified as Black, and who are English speaking (but may also speak another language). The overall response rate was 72.3 %. Response rates for individual subgroups were 70.7 % for African Americans, 77.7 % for Black Caribbeans, and 69.7 % for non-Hispanic Whites. This response rate is excellent considering that African Americans (especially lower income African Americans) and Black Caribbeans are more likely to reside in major urban areas where it is more difficult and much more expensive to collect interviews. Final response rates for the NSAL two-phase sample designs were computed using the American Association of Public Opinion Research (AAPOR) guidelines (for Response Rate 3) (AAPOR 2006).

In both the African American and Black Caribbean samples, it was necessary for respondents to self-identify their race as black. Those self-identifying as black were included in the Black Caribbean sample if they: (a) answered affirmatively when asked if they were of West Indian or Caribbean descent, (b) said they were from a country included on a list of Caribbean area countries presented by the interviewers, or (c) indicated that their parents or grandparents were born in a Caribbean area country (see Jackson et al. 2004 for a more detailed discussion of the NSAL sample). The interviews were face-to-face and conducted within respondents' homes.

Respondents were compensated for their time. The data collection was conducted from 2001 to 2003.

Characteristics of the Sample

A full description of the demographic characteristics of the black Caribbean sample of the NSAL is provided in Williams et al. (2007). The average age of Black Caribbeans in the sample is 40 years. Overall, 51 % are male and 49 % are female. Thirty-eight percent of respondents are married, the average imputed family income is $47,000, and the average education level is 13 years of schooling (high school degree plus 1 year of college). Thirteen percent (12.64 %) of this sample is from Haiti, 14.07 % is from a Spanish-speaking country and the remainder of Black Caribbeans claims a national heritage from an English-speaking country. Lastly, 36 % of this sample indicates that they were born in the U.S.A.

Measures

The comorbid mood and anxiety disorders variable consists of four mutually exclusive categories: (1) having a mood disorder only, (2) having an anxiety disorder only, (3) having both an anxiety and a mood disorder, or (4) having neither an anxiety nor a mood disorder. Mood disorders include major depression, dysthymia, and bipolar I and II. Anxiety disorders include panic, social phobia, agoraphobia without panic, generalized anxiety, and PTSD.

Our analysis also examines whether comorbid disorder is associated with substance disorders and suicidal behavior. Substance disorders include alcohol abuse, alcohol dependence, drug abuse, and drug dependence. Suicidal behavior is assessed in its own section of the World Mental Health Composite International Diagnostic Interview (WMH-CIDI) by a series of questions about lifetime suicidal behaviors (Joe et al. 2006; Kessler et al. 2005). Respondents were screened into the suicidality section of the WMH-CIDI if they answered affirmatively to the question "Have you ever seriously thought about committing suicide?" These respondents are classified as having engaged in suicidal ideation. Only those who have engaged in suicidal ideation were asked the question "Have you ever attempted suicide?" These respondents are classified as having attempted suicide. All mental disorders were assessed using the Diagnostic and Statistical Manual (DSM-IV) World Mental Health Composite International Diagnostic Interview (WMH-CIDI), a fully structured diagnostic interview (Kessler and Ustun 2004).

Our analysis also examines lifetime service use for comorbid mood and anxiety disorders. All Caribbean Blacks in the NSAL were asked if they had seen any of an extensive list of treatment providers for problems with their emotions, nerves, mental health, or use of alcohol or drugs. Treatment providers were categorized into three sectors: (1) *specialty mental health* (psychiatrists and nonpsychiatric mental health therapist classifications that represent mental health hotlines, psychologists, and other professionals, as well as counselors or social workers seen in mental health settings), (2) *general medical* (general practitioners, family doctors, nurses, occupational therapists, and other health professionals), and (3) *any services*, which included the two previously mentioned sectors plus two nonhealth sectors: use of human services

(religious and spiritual advisors; counselors and social workers seen in non–mental health settings) and complementary alternative medicine providers (herbalists, chiropractors, spiritualists, self-help groups, and internet support groups). Lifetime service use within a particular treatment sector was defined as making at least one visit to a member of the treatment sector. The treatment sectors were not mutually exclusive; it was possible for individuals to have received help from more than one sector.

It is important to note that psychiatric disorders only affect a relatively small proportion of the general population. Consequently, in this analysis, only a few cases meet the criterion for comorbid disorders. Because of the small number of individuals with comorbid disorders our analysis has four independent variables (age, gender, nativity, and country of origin). Nativity and country of origin are particularly relevant to the Black Caribbean population in the U.S.A. Nativity has two categories (i.e., born in the Caribbean and immigrated to the U.S.A. vs. born in the U.S.A.). Finally, respondents identified over 25 different countries of origin. Consistent with research on the Caribbean, the country of origin variable has been categorized based upon historical and anthropological categorizations of the Caribbean as Anglophone (English speaking), Hispanophone (Spanish speaking), and Francophone (French Speaking) (see Gossai and Murrell 2000; Zane 1999). Jamaica, Trindad-Tobago, and other English-speaking countries (e.g., Barbados) represent the Anglophile countries, Spanish-speaking or Hispanophone countries include Puerto Rico, Dominican Republic and Cuba, and Haiti is the Francophone country.

Analysis Strategy

Cross-tabulations are presented to illustrate bivariate relationships. Multinomial logistic regression (Agresti 1990) was used to investigate the relationship between nativity and country of origin on comorbid mood and anxiety disorders controlling for age and gender. The reference category is having neither a mood nor anxiety disorder. Multinomial logistic regression is appropriate for the four-level polytomous response outcome variables used in this study and can accommodate both continuous and categorical independent variables. Logistic regression was used to examine the relationship between comorbid psychiatric disorders and substance abuse disorders and suicidal behavior. Odd ratios (logistic regression), relative risk ratios (multinominal logistic regression), and 95 % confidence intervals are presented. All statistical analyses accounted for the complex multistage clustered design of the NSAL sample, unequal probabilities of selection, nonresponse, and poststratification to calculate weighted, nationally representative population estimates, and standard errors. All percentages reported are weighted.

Results

Comorbid Mood and Anxiety Disorders

Three out of four respondents (72.67 %) had neither a mood nor an anxiety disorder. Seven percent (7.19 %) had comorbid mood and anxiety disorders, 8.66 % had a mood disorder only, and 11.46 % had an anxiety disorder only. Table 1 presents the

Table 1 Distribution of lifetime comorbid mood and anxiety disorders by nativity and country of origin, gender, and age among Black Caribbeans in the NSAL

	Total		Both mood and anxiety disorders		Mood disorders only		Anxiety disorder only		Neither mood nor anxiety disorder	
	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*
Nativity										
Born in the U.S.A.	35.45	432	9.55	38	15.19	49	17.74	53	57.51	292
Born in a Caribbean country	64.55	1,141	5.73	50	5.08	56	7.91	101	81.27	934
Rao-Scott χ^2	18.42*									
N	1,573									
Country of origin										
Spanish	14.33	175	13.29	19	6.80	11	20.95	22	58.97	123
Haiti	12.73	290	6.81	13	8.82	13	5.65	22	78.71	242
English	72.94	1,100	5.45	55	9.41	81	10.15	109	74.99	855
Rao-Scott χ^2	10.83									
N	1,565									
Gender										
Male	50.72	630	5.71	27	9.15	35	14.12	57	71.03	511
Female	49.28	951	8.73	63	8.16	71	8.73	99	74.38	718
Rao-Scott χ^2	3.21									
N	1,581									
Age										
18–34	41.96	608	7.84	40	12.23	56	13.77	75	66.15	437
35–54	39.45	678	7.26	42	5.80	36	11.25	61	75.69	539
55+	18.59	295	5.61	8	6.67	14	6.70	20	81.02	253
Rao-Scott χ^2	6.26									
N	1,581									

n unweighted, "%" weighted

*$p<0.001$

bivariate analysis of the distribution of comorbid mood and anxiety disorders by nativity and country of origin. Nativity was significantly associated with the distribution of comorbid mood and anxiety disorders. Eight out of ten respondents (81.27 %) born in Caribbean countries experienced neither a mood nor anxiety disorder compared to 57.5 % of respondents born in the U.S.A. Similarly, 15.19 % of respondents born in the U.S.A. had a mood disorder only and 17.74 % had an anxiety disorder only. This compares to only 5.08 % of respondents who were born in Caribbean countries having a mood disorder only and 7.91 % having an anxiety disorder only. There were no significant differences in the distribution of comorbid mood and anxiety disorders by country of origin, gender, or age.

The results of the multinominal regression analysis of the distribution of comorbid mood and anxiety disorders on nativity and country of origin are presented in Table 2.

Black Caribbean women were significantly less likely than Black Caribbean men to have an anxiety disorder only. Compared to respondents born in the U.S.A., persons born in a Caribbean country were significantly less likely to have a mood disorder only and less likely to have an anxiety disorder only. Respondents from Spanish-speaking countries were more likely to have a comorbid mood and anxiety disorder than respondents from English-speaking countries, but the confidence interval for this risk ratio is particularly large (1.07–6.51) because of the small number of respondents from Spanish-speaking countries who have comorbid disorders.

The bivariate analysis of substance disorders among respondents with mood and anxiety disorders (Table 3) indicates that only a few respondents who have neither mood nor anxiety disorders experience substance disorders (2.63 %). Black Caribbeans with a comorbid mood and anxiety disorder were no more likely to have a substance disorder (19.78 %) than those with a mood disorder only (30.21 %) and those with an anxiety disorder only (32.61 %). In contrast, Black Caribbeans with neither a mood nor an anxiety disorder had lower rates of a lifetime suicidal attempt (0.87 %) and also had lower rates of lifetime suicidal ideation (4.36 %). A higher percentage of respondents with a comorbid psychiatric disorder reported that they had a lifetime suicidal ideation (50.66 %) than those with a mood disorder only (32.89 %) and those with an anxiety disorder only (24.12 %).

Logistic regressions of lifetime substance disorder, lifetime suicidal attempts, and lifetime suicidal ideation on the distribution of comorbid mood and anxiety disorders

Table 2 Multinomial regression analysis of comorbid mood and anxiety disorders among Black Caribbeans in the NSAL sample

	Both mood and anxiety disorders[a] RRR (95 % CI)	Mood disorders only[a] RRR (95 % CI)	Anxiety disorder only[a] RRR (95 % CI)
Gender: female	2.01 (0.84–4.81)	0.84 (0.32–2.22)	0.52 (0.33–0.80)**
Age	0.98 (0.95–1.01)	0.98 (0.94–1.02)	0.98 (0.96–1.01)
Nativity			
Born in the U.S.A.[b]	1.0	1.0	1.0
Born in a Caribbean country	0.59 (0.19–1.84)	0.23 (0.06–0.86)*	0.38 (0.17–0.84)*
Country of origin			
English[b]	1.0	1.0	1.0
Spanish	2.64 (1.07–6.51)*	0.63 (0.08–4.96)	2.00 (0.75–5.32)
Haiti	0.94 (0.34–2.66)	0.71 (0.17–2.97)	0.48 (0.23–1.01)
$F_{15,12}$	5.97		
Prob>F	0.002		
N	1,564		

RRR relative risk ratio, *CI* confidence interval

[a] Neither mood nor anxiety disorder is the comparison group

[b] Reference category

*$p<0.05$; **$p<0.01$

Table 3 Lifetime prevalence of substance disorder, suicidal attempts, and suicidal ideation on lifetime comorbid mood and anxiety disorders among Black Caribbeans in the NSAL

	Total		Both mood and anxiety disorders		Mood disorders only		Anxiety disorder only		Neither mood nor anxiety disorder	
	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*
Lifetime substance disorder										
Yes	9.66	88	19.78	21	30.21	14	32.61	19	2.63	34
No	90.34	1,490	80.22	68	69.78	92	67.38	135	97.36	1,195
Rao-Scott χ^2	52.89*									
N	1,578									
Lifetime suicidal attempts										
Yes	5.14	48	21.38	13	18.64	9	12.12	11	0.87	15
No	94.86	1,527	78.26	75	81.35	97	87.87	142	99.12	1,213
Rao-Scott χ^2	32.37*									
N	1,575									
Lifetime suicidal ideation										
Yes	12.35	145	50.66	34	32.89	23	24.12	25	4.36	63
No	87.65	1,430	49.33	54	67.11	83	75.88	128	95.63	1,165
Rao-Scott χ^2	63.98*									
N	1,575									

n unweighted, "%" weighted

*$p<0.001$

are presented in Table 4. As expected respondents who do not have either a mood or an anxiety disorder had significantly reduced odds of having a lifetime substance disorder or engaging in suicidal behavior. For the most part, Black Caribbeans with comorbid mood and anxiety disorders were not more likely than those with a mood disorder only or an anxiety disorder only to report a substance disorder or engage in suicidal behaviors. A notable exception was that respondents with an anxiety disorder only were significantly less likely to have had a suicidal ideation than respondents who had both a mood and anxiety disorder.

There were several significant demographic differences displayed in Table 4. Black Caribbean women were less likely to have a lifetime substance disorder and were less likely to have a lifetime suicidal attempt than were Black Caribbean men. Older respondents were significantly less likely than their younger counterparts to have a lifetime suicidal attempt or a suicidal ideation. Lastly, those who were born in a Caribbean country were significantly less likely to have a substance disorder or suicidal attempt.

Table 5 presents a bivariate analysis of the rates of mental health and other service use among Black Caribbeans with comorbid mood and anxiety disorders. Rates of specialty mental health service use were higher among respondents with comorbid mood and anxiety disorders (81.23 %) than among those who had a mood disorder only (44.75 %) or an anxiety disorder only (65.32 %). The rates of general medical

Table 4 Logistic regression of lifetime substance disorder, lifetime suicidal attempts, and lifetime suicidal ideation on lifetime comorbid mood and anxiety disorders and demographic variables among Black Caribbeans in the NSAL

	Lifetime substance disorder	Lifetime suicidal attempts	Lifetime suicidal ideation
	OR (95 % CI)	OR (95 % CI)	OR (95 % CI)
Comorbid mood and anxiety disorders			
Both[a]	1.0	1.0	1.0
Anxiety only	0.71 (0.17–2.99)	0.41 (0.08–2.16)	0.34 (0.14–0.82)*
Mood only	0.59(0.19–1.79)	0.57 (0.22–1.48)	0.43 (0.18–1.04)
Neither	0.06 (0.02–0.155)***	0.04 (0.01–0.21)***	0.06 (0.02–0.13)***
Gender: female	0.10(0.05–0.20)***	0.37(0.14–0.99)*	0.82(0.41–1.65)
Age	1.01(0.98–1.04)	0.96(0.93–0.98)***	0.98 (0.96–0.99)*
Nativity			
Born in the U.S.A.[b]	1.0	1.0	1.0
Born in a Caribbean country	0.19(0.10–0.38)***	0.14(0.03–0.56)**	0.06 (0.32–1.12)
Country of origin			
English[b]	1.0	1.0	1.0
Spanish	0.61(0.09–4.09)	0.37(0.03–4.54)	0.62(0.17–2.23)
Haiti	0.43(0.11–1.67)	0.21(0.04–1.16)	0.94(0.37–2.36)
Likelihood ratio			
Chi square	47.97***	25.84**	31.26***
N	1,564	1,561	1,561

OR odds ratio, *CI* confidence interval

[a] Reference category

*$p<0.05$; **$p<0.01$; ***$p<0.001$

service use were fairly even among respondents with comorbid mood and anxiety disorders and those with lone mood or lone anxiety disorders with roughly one out of four respondents indicating that they used this type of service at some point in their lives. Rates of service use were higher among respondents with anxiety disorders than mood disorders, across both sectors, and overall.

Discussion

This study, as an initial investigation of comorbid psychiatric disorders among Black Caribbeans in the U.S.A., contributes to a small but emerging body of literature investigating the mental health of this population. Among respondents with lifetime mood disorders who also met the criteria for anxiety disorders, the proportions for two groups in our study—Caribbean-born and Spanish-speaking origins—are largely consistent with national estimates (Kessler et al. 2005; King-Kallimanis et al. 2009). The proportion of respondents with substance disorders who also met criteria for mood and/or anxiety disorders was generally consistent with extant research based on

Table 5 Lifetime service use among Black Caribbeans with comorbid mood and anxiety disorders

	Total		Both mood and anxiety disorders		Mood disorders only		Anxiety disorder only		Neither mood nor anxiety disorder	
	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*
Specialty mental health										
Yes	26.74	327	81.23	58	44.75	49	65.32	81	13.17	139
No	73.26	1,251	18.77	31	55.24	56	34.67	74	86.83	1,090
Rao-Scott χ^2	88.94**									
N	1,578									
General medical										
Yes	11.42	130	25.52	26	22.51	18	28.21	35	6.08	51
No	88.58	1,448	74.48	63	77.49	87	71.79	120	93.92	1,178
Rao-Scott χ^2	12.97*									
N	1,578									
Any service										
Yes	28.15	361	85.46	64	46.48	55	66.75	85	14.26	157
No	71.85	1,217	14.54	25	53.52	50	33.25	70	85.74	1,072
Rao-Scott χ^2	91.29**									
N	1,578									

n unweighted, "%" weighted

*$p<0.01$; **$p<0.001$

national samples. For instance, reports from the "National Epidemiologic Survey on Alcohol and Related Conditions" (Conway et al. 2006) indicate that among patients with drug use disorders, about 40 % also experienced mood disorders and about 30 % also experienced anxiety disorders.

The comorbid relationship between psychiatric disorders and subsequent onset of suicide risk is well supported (Harris and Barraclough 1997). Prior research has estimated between 90 and 95 % of suicide decedents had at least one diagnosable psychiatric disorder (Cavanagh et al. 2003). The current study is consistent with the existing literature in that there is support of a strong relationship between mental disorders and increased suicide risk among Caribbean blacks. A unique contribution of this study is that it provides empirical evidence that not only are comorbid mood and anxiety disorders associated with increased suicidal risk, but mood disorders alone as well as anxiety disorders alone are both associated with increased suicidal risk among Caribbean blacks (Table 3). This finding is important because it helps discern whether depression is the true predictor of suicide risk and anxiety is only associated with such behavior because it tends to co-occur with depression (Nock et al. 2012).

While there was only one significant country of origin association, nativity was significant in several of the multivariate analysis. In particular, compared to U.S.-born respondents, those who were born in the Caribbean were significantly less likely to have lifetime mood disorders only or lifetime anxiety disorders only versus neither

mood nor anxiety disorders. They were also significantly less likely than U.S.-born respondents to have a lifetime substance disorder or a lifetime suicidal attempt. As noted previously, there is a body of research indicating that immigrants may have higher levels of stress and poorer mental health. Our findings are consistent with a competing body of research indicating that immigrants have better physical and mental health and consequently lower rates of mental disorders. Variously termed the "healthy immigrant effect," "healthy migrant effect", or the "healthy immigrant paradox" this line of thinking suggests that although foreign-born populations may come from poorer countries, they have superior physical and mental health profiles (e.g., lower mortality rates; lower rates of heart disease; and breast, prostate, and colon cancer) than native-born groups (see review by Cunningham et al. 2008). Although there are few studies of the mental health of black immigrants to the U.S.A., those that are available indicate that among U.S. blacks, immigrants have better mental health. For instance, Dey and Lucas (2006) found that black immigrants had fewer symptoms of serious psychological distress than did their U.S.-born counterparts.

There were several significant gender differences in our analysis. Black Caribbean men were more likely than Black Caribbean women to have anxiety disorders only versus neither mood or anxiety disorders, and to have substance disorders or to have had a suicidal attempt. This is consistent with previous analysis of the NSAL data, which found that Caribbean men had higher rates of 12-month mood, anxiety, and substance disorders than African American men while Caribbean women had lower rates of 12-month anxiety and substance disorders than African American women (Williams et al. 2007). Black Caribbean men also have higher rates of PTSD than did Black Caribbean women (Himle et al. 2009). The present findings among Black Caribbeans are unique because among both African Americans and non-Hispanic whites, women have a higher prevalence of psychiatric disorders.

Research indicates that immigrant Caribbean men generally have a more difficult time adjusting to life in the U.S.A. than their female counterparts. This is due to several issues including the fact that Caribbean men face more challenges in the labor market (e.g., both underemployment and unemployment). Caribbean women are more likely to be actively recruited to take positions in the allied health field (e.g., nurses and nurses aides) and generally have increased job and educational opportunities in the U.S.A. (Foner 2005). Caribbean men, however, are less likely to find employment and are more likely to be underemployed. This is clearly an area where more qualitative research is needed to help understand the gender differences in psychiatric disorders among Black Caribbeans and the potential role of labor market experiences as stressors.

Significant age differences indicated that older Black Caribbeans were less likely to have had a suicidal ideation or a suicidal attempt. There are several possible explanations for these findings. The first, known as a selection effect or a "healthy survivor effect", suggests that persons without psychiatric disorders are more likely to live to older ages. Consequently, older Black Caribbeans tend to have lower prevalence of suicidal behaviors because overall this is a healthier subgroup. The second explanation centers on cohort effects that shape attitudes toward suicide (Joe 2006). That is, distinct age cohorts within the Black Caribbean population reflect different attitudes and beliefs regarding suicide that persist over time. Older adults, in

particular, were raised during a time when suicide was very severely proscribed and thus, may be less likely to experience (or report) suicidal ideation or attempts. Younger adults, in contrast, are exposed to less severe social attitudes regarding suicide and are more open to discussions of suicide; consequently, they may be more likely to experience and report suicidal behavior. Finally, there is some evidence of increasing rates of suicidal behavior among young African Americans over the past several years (Joe 2006; Joe et al. 2006; Xu et al. 2010). These trends in suicide behaviors may reflect the impact of contemporaneous events or period effects (e.g., publicizing and discussion of youth suicides) that, while experienced widely in society, have selective impacts on young adults (see Joe et al. 2006 for a more detailed examination of the correlates of suicidal behavior among both Black Caribbeans and African Americans).

Our analysis also finds that Black Caribbeans with both mood and anxiety disorders have high rates of mental health services utilization. This is consistent with previous research on other populations. One study shows that compared to individuals with a single diagnosis, those with dual diagnoses used twice the number of mental health and substance services 2 years post diagnosis and experienced five times the number of psychiatric hospitalizations (Mark et al. 2007). Comorbid psychiatric disorders are more intractable and effective service provision poses unique challenges. Comorbidity is linked to excessive service utilization in hospitals and emergency rooms, often without commensurate long-term benefits. Research indicates that treatment for comorbid disorders is expensive—as high as 60 % greater than for single disorders (Dickey and Azeni 1996). Moreover, data on health services, such as the "National Survey on Drug Use and Health" (SAMHSA 2011) demonstrate that individuals with comorbid disorders are underserved, receiving suboptimal care at best.

Limitations

Several study limitations should be noted. First, when the WHO-CIDI questions assessing alcohol and drug dependence were modified, a faulty skip pattern was introduced that resulted in underreporting of rates of substance dependence. This influences both the prevalence rates and our findings related to substance disorders. Second, the number of cases for prevalence is too small to control for more than a few demographic variables in our multivariate analyses. The small sample size for individuals with comorbid disorders substantially reduced the ability to detect significant differences. Third, the NSAL excludes individuals who cannot speak English. Lastly, the NSAL is cross-sectional and as such we cannot make causal inferences. Despite these limitations, this study presents the first detailed analysis of psychiatric comorbidity among Black Caribbeans and contributes to a very small, but growing literature on mental health among Black Caribbeans in the U.S.A.

Conclusion

The psychiatric, medical, occupational, and psychosocial disability associated with psychiatric comorbidity is costly to individuals and their families, as well as to the health care system and society (Masthoff et al. 2006). Fortunately, policymakers and

government agencies recognize that addressing the issue of psychiatric comorbidity has potential for improving the lives of many Americans, mitigating health disparities, and reducing health care costs. The President's New Freedom Commission on Mental Health (New Freedom Commission on Mental Health 2003) acknowledges the need to improve treatment for comorbid disorders. Similarly, the Bridging Science and Services Report to the National Institute of Mental Health (National Institute of Mental Health 1998) promotes a mandate for research aimed at improving the quality of care for all those affected by comorbid conditions.

A broad range of service providers, government agencies, and research institutions offer programs that target the considerable burden caused by comorbid conditions. Addressing the burden of psychiatric comorbidity, particularly among under-studied populations such as Black Caribbeans, requires the recognition and treatment of these conditions based on a strong body of evidence. Research that provides a more nuanced profile of comorbid conditions will aid in the planning and development of interventions, services, and education for service providers.

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