



Multiple Mental Disorders and Suicidality; Cross-Ethnic Variation among Blacks

Assari Shervin (MD, MPH)^{1,2*}

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1. Department of Health Behavior and Health Education, University of Michigan, School of Public Health
2. Center for Research on Ethnicity, Culture, and Health (CRECH), University of Michigan, School of Public Health

***Corresponding author:**
Department of Health Behavior and Health Education, University of Michigan, School of Public Health
Email: assari@umich.edu

ABSTRACT

Background: For psychiatric disorders, comorbidity is a rule rather than exception. Thus it is particularly important to study additive and multiplicative effects of multiple mental disorders on suicidal behaviors.

Objectives: The aim of this study was to investigate the ethnic differences in multiplicative effects of mental disorders on suicidal ideation among Black adults in the United States.

Materials and Methods: Data came from the National Survey of American Life, 2001-2003. For this study, we used data of 5,181 Black adults (3,570 African Americans and 1,621 Caribbean Blacks). Lifetime depression, anxiety, and drug abuse as well as suicidal ideation were measured, using the World Mental Health Composite International Diagnostic Interview (WMH-CIDI). Ethnic specific logistic regressions were used to determine multiplicative effects of anxiety, depression and drug abuse on suicidal thoughts among African Americans and Caribbean Blacks.

Results: Depression showed multiplicative effects with anxiety and drug abuse for African Americans, but not Caribbean Blacks. Drug abuse and anxiety showed multiplicative effects among Caribbean Blacks but not African Americans.

Conclusion: Based on our study, ethnicity modifies how anxiety, depression and drug abuse contribute to suicidality among Blacks. As suicide risk is differently influenced by multiple psychiatric disorders for African Americans and Caribbean Blacks, ethnic-specific programs for screening and prevention of suicide is suggested.

Keywords: Ethnic Groups; Suicidal Ideation; Depression; Anxiety

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Introduction

In industrial countries, mental disorders are stronger cause of suicide compared to social factors (1). The role of psychiatric disorders in increasing the risk of suicidal behaviors is known (2-9), as majority of individuals with suicidal ideation or attempt meet criteria for at least one mental disorder (10).

As comorbidity is a rule rather than exception when it comes to psychiatric disorders, it is particularly important to study additive and multiplicative effects of multiple mental disorders on suicidal behaviors (10). Unfortunately, whether the effects of multiple psychiatric

disorders are additive, synergistic, or sub-additive is still unknown (11-16).

Additive and multiplicative effects of mental disorders may depend on race and ethnicity (17-20). While for Whites multiple psychiatric disorders may have sub-additive effects (21-23), these effects seem to be synergistic for Blacks (15). Within Black race, there might be ethnic differences in the complex links between multiple mental disorders and suicidality (12-14). However, no previous study has compared ethnic groups of Blacks for multiplicative effects of psychiatric disorders.

Although most studies on psychiatric disorders and suicide have focused on major depressive disorder (24), other disorders such as anxiety and drug abuse also increase risk of suicidal behaviors (25-28). In general population of US adults, the number of mental disorders has been reported as the strongest predictor of suicidal behaviors (29).

Despite psychiatric disorders tend to be comorbid (11), most of the previous research on the association between mental disorders and suicidality have focused on separate effects of psychiatric disorders (10,24). There is very little information on multiplicative effects of multiple mental disorders on risk of suicidality (10,16). Thus, although we know several mental disorders increase the risk of suicidal thoughts, plan and attempt (2-9), it is not known how presence of one psychiatric disorder changes the effect of another (12-15).

Historically, suicide has been considered a public health problem for Whites but not Blacks (30,31). Suicide rate, however, are increasing for Blacks (32,33). There are even reports that suggest Blacks may experience similar incidence of suicidal attempts as Whites (34). As suicide may develop in earlier age among Blacks, time is more limited for suicide prevention for Blacks (35).

Unfortunately, limited information exists on suicidal ideation among Blacks with multiple mental disorders (12-15). Assari and colleagues showed that the effects of psychiatric disorders on suicidality among Black American adults depend

on ethnicity (13). In the pooled sample, ethnicity interacted with anxiety disorder and drug abuse effecting on suicide. Among African Americans, depression, anxiety, post-traumatic stress disorder and alcohol abuse and among Caribbean Blacks, however, depression and drug abuse disorder were linked to the risk of lifetime suicidal ideation. Authors concluded that while general anxiety disorder is a more important risk factor for suicidal ideation among African Americans, drug abuse may impose a larger risk for Caribbean Blacks (13). That study, however, was on the interaction between ethnicity and psychiatric disorders not multiplicative effects of psychiatric disorders across ethnic groups of Blacks.

Borrowing data from a nationally representative mental health survey of Black adults in the U.S., this study aimed to compare African-Americans and Caribbean Blacks for multiplicative effects of psychiatric disorders on suicidal ideation. Built on the differential effect hypothesis (17-20,36,37), the study is in continuation of our previous research on additive (14) and multiplicative effects (15) of mental disorders based on race, ethnicity, and gender (12-14).

Materials and Methods

This study had a cross sectional design. Data came from the National Survey of American Life (NSAL). The NSAL is a national household survey of Black Americans who lived in the US. Methodology of the NSAL has been previously described (38).

Participants

The NSAL study enrolled a nationally representative sample of 3,570 African Americans and 1,621 Caribbean Blacks. African Americans compose the largest portion of NSAL study. Sampling frame for African Americans was 48 states from households that contained at least one Black adult. The Caribbean Black sample was composed of two sub-samples. First included 265 samples collected from households within the

core sample. The second component included Caribbean Black samples who were collected from households within geographic areas with high Caribbean population (defined as metropolitan areas where Caribbean Blacks compose more than ten percent of the population) (38-40).

Interviews

From all interviews, 86% of the interviews were conducted face-to-face using computer assisted interviewing, while the remaining 14% were at least partially conducted by telephone (38).

Mental disorders

The following (lifetime) psychiatric disorders were measured based on the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV): 1) major depressive disorder, 2) generalized anxiety disorder, and 3) drug abuse. We used the World Mental Health Composite International Diagnostic Interview (CIDI) for our purpose. The CIDI diagnoses are believed to be “consistent” with diagnoses based on a clinical research diagnostic interview (Structured Clinical Interview) (41).

Suicide ideation

Outcome was lifetime serious suicide ideation, measured using the following single item: “have you ever seriously thought about suicide?” All participants could refuse to answer this question (12-15,17-19,42,43).

Socio-demographic factors

This study collected data on age (continuous variable), gender (female and male [reference category]), as well as region (Northeast [reference category], Midwest, South, and West). The following socio-economic factors were also measured: education (ordinal variable; Less than 12 years [reference category], 12 years, 13-15 years, and More than 15 years), marital status (categorical variable; Married [reference

category], Divorced/ separated/ widowed, and Never married), and employment (a three level categorical variable [reference category]; Employed, Unemployed, and Not in labor market). e level categorical variable [reference category=employed].

Moderator

Ethnicity was either African American or Caribbean Blacks. Caribbean Black was defined as meeting at least one of the following three criteria: 1) being of West Indian or Caribbean descent, 2) being from a country located in the Caribbean region, or 3) having parents or grandparents born in a country within the Caribbean region.

Statistical analysis

Stata-13 (Stata Corp., College Station, TX, USA) was used for data analysis, due to complex sampling used in the NSAL study. We used Taylor series linearization to estimate standard errors. Sub-population survey logistic regressions were used for multi-variable analysis in each ethnic group. In all models, serious suicide ideation was the main outcome, mental disorders were the predictors, and socio-demographics (i.e., age, gender, education level, employment, marital status and country region) were control variables. Multi-co-linearity between the independent variables was ruled out. First, we ran ethnic-specific logistic regressions without interaction terms. In the next step, we fitted ethnic-specific logistic regressions with all (n=3) two by two interactions. We kept the main effects in the model even if they were not statistically significant. Odds ratio and 95% CI were reported.

Results

Most African Americans and Caribbean Blacks did not meet criteria for any mental disorder(s) included in this study. Table 1 presents descriptive statistics based on ethnicity.

Table 1. Descriptive statistics based on ethnicity

	African Americans (n=3,570) N (%)	Caribbean Blacks (n=1,621) N (%)
Gender		
Male	1,271 (44.02)	643 (50.87)
Female	2,299 (55.97)	978 (49.13)
Marital status		
Married/partner	1,222 (41.65)	693 (50.15)
Widowed, separated, divorced	1,164 (27)	385 (18.93)
Never married	1,176 (31.57)	543 (30.91)
Mean (SD)		
Age	42.32 (14.49)	40.27 (5.77)
Education (Years)	12.43 (2.23)	12.88 (1.01)
Annual Income (USD)	36,833 (33,068)	47,044 (15,190)
These descriptions are previously reported elsewhere. (12-15) SD; Standard Deviation		

Additive effects

Among African Americans, depression (OR=4.00), anxiety (OR=2.56), and drug abuse (OR=2.04) were positively associated with odds of lifetime suicidal ideation. Among Caribbean

Blacks depression (OR=5.11) and drug abuse (OR=19.72) but not anxiety were positively associated with lifetime suicidal ideation (Table 2).

Table 2. Additive effects of mental disorders on suicidal ideation among African Americans and Caribbean Blacks

	African Americans (n=3,570)		Caribbean Blacks (n=1,621)	
	OR	95% CI	OR	95% CI
Age	0.98	0.97-0.99	0.98	0.96-1.00
Gender				
Men	ref		ref	
Women	1.18	0.88-1.57	1.50	0.76-2.96
Education				
Less than 12 years	ref		ref	
12 years	0.95	0.64-1.41	1.58	0.69-3.60
13-15 years	0.77	0.49-1.20	1.38	0.40-4.69
More than 15 years	0.75	0.49-1.17	1.26	0.52-3.05
Employment				
Employed	ref		ref	
Unemployed	1.68	1.19-2.37	0.51	0.17-1.53
Not in labor market	1.31	0.88-1.95	0.97	0.38-2.46
Marital status				
Married	ref		ref	
Divorced/ separated/ widowed	1.18	0.80-1.74	0.66	0.23-1.91
Never married	0.76	0.54-1.06	2.71	1.29-5.68
Region				
Northeast	ref		ref	
Midwest	0.76	0.45-1.29	3.02	0.67-13.66
South	0.66	0.41-1.06	1.81	0.60-5.40
West	0.93	0.34-2.55	1.88	0.57-6.19
Depression	4.00	3.05-5.25	5.11	2.11-12.42
Drug abuse	2.04	1.20-3.47	19.72	4.06-95.72
Anxiety	2.56	1.44-4.58	0.23	0.05-1.13

Multiplicative effects

Multiplicative effects of depression and anxiety were only found for African Americans. Multiplicative effects between drug abuse and

anxiety were only found among Caribbean Blacks. Drug abuse and depression showed multiplicative effects among African Americans (Table 3).

Table 3. Multiplicative effects of mental disorders on suicidal ideation among African Americans and Caribbean Blacks

	African Americans (n=3,570)		Caribbean Blacks (n=1,621)	
	OR	95% CI	OR	95% CI
Age	0.98	0.97-0.99	0.98	0.96-1.00
Gender				
Male	ref		ref	
Female	1.18	0.88-1.58	1.74	0.86-3.52
Education				
Less than 12 years	ref		ref	
12 years	0.95	0.64-1.41	1.58	0.79-3.14
13-15 years	0.76	0.49-1.18	1.40	0.56-3.48
More than 15 years	0.71	0.45-1.13	1.22	0.46-3.24
Employment				
Employed	ref		ref	
Unemployed	1.65	1.15-2.36	0.73	0.26-2.06
Not in labor market	1.29	0.87-1.90	1.09	0.45-2.66
Marital status				
Married	ref		ref	
Divorced/ separated/ widowed	1.14	0.78-1.66	0.65	0.23-1.88
Never married	0.76	0.54-1.05	2.52	1.01-6.29
Region				
Northeast	ref		ref	
Midwest	0.78	0.48-1.27	3.07	0.84-11.24
South	0.66	0.43-1.03	1.93	0.70-5.31
West	0.94	0.35-2.53	2.19	0.69-6.90
Depression	0.68	0.23-2.01	0.52	0.04-6.77
Drug abuse	3.07	1.81-5.21	41.35	7.10-240.81
Anxiety	2.27	0.59-8.70	0.06	0.00-0.95
Anxiety × Depression	3.46	1.13-10.55	3.65	0.38-35.36
Anxiety × Drug abuse	2.65	0.80-8.75	9.63	5.97-16.60
Depression × Drug abuse	2.22	1.17-4.22	3.46	0.23-52.69

Discussion

Current study showed that multiplicative effects of mental disorders on suicidal ideation among Black adults depend on ethnicity. Depression has multiplicative effects with drug abuse and anxiety among African Americans, while drug abuse and anxiety interacted among Caribbean Blacks.

Assari and colleagues have shown that number of psychiatric disorders has a dose-dependent effect on the first age of development of suicidal ideation among Black adults in the US (12). The study showed that among Blacks, suicidal ideation was found to start at a lower age among Blacks with two or more mental disorders, compared to those with one disorder (12). In another study by Assari, number of psychiatric disorders was an independent risk factor for odds of suicidal ideation, an effect which was independent of ethnicity and gender (14).

Although we know that suicide rates vary among the ethnic groups (44-46), very few studies have explored how risk factors of suicide among

Blacks vary based on ethnicity (12-14,42,43). Given that the foreign-born share of the Black American population rose from 1% to 8% between 1960 and 2005 and immigration contributed 20% of the growth of the US black population between 2000 and 2006 (47), it is important to examine the impact of ethnicity on the patterns of suicidal behavior among black Americans if we are to develop effective intervention strategies.

Nationally representative studies have suggested that risk of suicidal behaviors among Blacks depend on ethnicity (15,24). Among adults, 7.5% of Caribbean black men reported lifetime suicide attempt, while the rate was 4.1% among African American men (15). Joe and colleagues have found that Blacks with mental disorders were eight times more likely to attempt to suicide than those without psychiatric disorders (42). Joe and colleagues have shown that African Americans are five times more likely to attempt to suicide compared to their Caribbean Blacks counterparts (45,46). In a study by Assari and

colleagues, additive effects of depression, anxiety, posttraumatic stress disorder, drug abuse and alcohol abuse increased the risk of suicidality among Black adults (13). No previous studies had tested the multiplicative effects of mental disorders on suicidality among ethnic groups of Blacks.

We found that ethnicity alters multiplicative effects of psychiatric disorders on suicidal thoughts among Blacks. In a study by Assari and colleagues (13), Caribbean Blacks and African Americans differed in the additive effects of mental disorders on risk of suicidal behaviors. While among African Americans, depression, anxiety, posttraumatic stress disorder and alcohol abuse were associated with the risk of suicidal thoughts, only depression and drug abuse predicted risk of suicidal thoughts for Caribbean Blacks (13).

While in our study effects of multiple psychiatric disorders among ethnic groups of Blacks were synergistic (27), previous studies have reported “sub-additive effects” among other ethnic groups such as Whites (16). Such “sub-additive effects” have been attributed to redundancy in risk for suicide with different psychiatric disorders, as many mental disorders overlap in etiology and phenotype (16-18). For Blacks, however, mental disorders are more chronic and disabling (40), thus they may show synergistic effects (15).

It has been shown that psychiatric disorders have does effects on suicidal ideation (14,41,48,49). However, ethnic differences in the multiplicative effects of anxiety, depression and drug abuse on suicidality of among Blacks are still unknown. The current study extends the literature and suggests that pattern of comorbidity of anxiety, depression, and drug abuse has implication for suicidal ideation, and such effect depends on ethnicity.

The results are very important because mental disorders are the strongest risk factors of suicide in countries such as US (50-53). Up to 98% of people who commit suicide meet criteria for at least one mental disorder. From various

psychiatric disorders that increase risk of suicide, depression and drug use account for 30% and 18% of cases of suicides, proportions that are higher than other conditions (54,55). Unique contribution of this study is showing that among ethnic groups of Blacks, the effect of depression, anxiety, and drug use on suicide depend on presence of other mental conditions.

It is not known what causes ethnic differences regarding the effect of psychiatric disorders on suicide. Ethnic differences may be due to the variations in culture, values, socio-historical experiences, socioeconomics, support system, or access to care, that all potentially influence distribution of suicide and suicidal ideation (48). One study has suggested that psychiatric conditions may differently influence hopelessness (56), which is a main predictor of suicide (57).

In a study, Assari and colleagues (13) argued that screening of anxiety and drug abuse may be more important for suicide prevention among African Americans and Caribbean Blacks, respectively. This is in line with a study that has shown anxiety and depression differently influence self-rated mental health of African Americans and Caribbean Blacks (18). Based on the results of current study, suicide prevention programs among Blacks may benefit from tailoring based on ethnicity. Screening for comorbid psychiatric disorders among Blacks who have suicidal ideation may be different for African Americans and Caribbean Blacks. In the presence of drug abuse, comorbid depression among African Americans and comorbid anxiety among Caribbean Blacks may be more important for detection of suicide. So, ethnicity should inform design and implementation of suicide programs (49).

This study had at least four limitations. First, validity of single item measures of suicidal ideation is not known. Validity of such measures may also depend on ethnicity. Participants with high level of stigma may underreport suicidal thoughts, so the outcome may have different misclassification bias based on ethnicity. Second, cross-ethnic comparability of diagnoses of

psychiatric disorders such as anxiety, depression and drug using the Composite International Diagnostic Interview is unknown (41). Third, due to using a cross-sectional design, we cannot interpret the associations to be causative. There is still a need for additional research on the complex associations between race, ethnicity, culture, social class, mental disorders, and suicide. Research should explore if culture explains ethnic-specific interactions between psychiatric disorders on suicidal ideation.

Although our findings showed ethnic-specific multiplicative effects of mental disorders on suicidality of Blacks in the United States, a large number of individuals with suicidal behaviors may only have one psychiatric disorder. Thus, our findings should not undermine importance of suicide screening and prevention for individuals with a single psychiatric disorder. However, suicide risk is greatest among Blacks who meet criteria for more than one psychiatric disorder. We also suggest closer suicide monitoring of Blacks who endorse criteria for multiple mental disorders.

Conclusion

Multiplicative effects of depression, anxiety, and drug abuse on suicidal ideation of Blacks may depend on ethnicity.

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Conflict of Interest

Authors have no conflict of interest.

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Authors Contributions

SA was responsible for the design, analysis of the data, drafting the manuscript.

Disclosure

This paper is an extension of paper "Synergistic Effects of Lifetime Psychiatric Disorders on Suicidal Ideation among Blacks in the USA".⁽²⁷⁾ As this is a secondary analysis of a national survey, some similarities in the Methods section of the paper. The reason is that more than 300 peer review papers have been published from this survey. Public data was downloaded from The Interuniversity Consortium for Political and Social Research (ICPSR), Institute for Social Research (ISR), University of Michigan.

References

1. Li Z, Page A, Martin G, Taylor R. Attributable Risk of Psychiatric and Socio-economic Factors for Suicide from Individual-level, Population-based Studies: A Systematic Review. *Soc Sci Med* 2011; 72:608-16.
2. Hoertel N, Franco S, Wall MM, Oquendo MA, Kerridge BT, Limosin F, et al. Mental Disorders and Risk of Suicide Attempt: a National Prospective Study. *Mol Psychiatry* 2015;20(6):718-26.
3. Holmstrand C, Bogren M, Mattisson C, Brådvik L. Long-term Suicide Risk in no, One or More Mental Disorders: the Lundby Study 1947-1997. *Acta Psychiatr Scand* 2015;132(6):459-69.
4. Walker ER, McGee RE, Druss BG. Mortality in Mental Disorders and Global Disease Burden Implications: a Systematic Review and Meta-analysis. *JAMA Psychiatry* 2015;72(4):334-41.
5. Silva C, Ribeiro JD, Joiner TE. Mental Disorders and Thwarted Belongingness, Perceived Burdensomeness, and Acquired

- Capability for Suicide. *Psychiatry Res* 2015;226(1):316-27.
6. Nock MK, Ursano RJ, Heeringa SG, Stein MB, Jain S, Raman R, et al. Mental Disorders, Comorbidity, and Pre-enlistment Suicidal Behavior Among New Soldiers in the US Army: Results from the Army Study to Assess Risk and Resilience in Service members (Army STARRS). *Suicide Life Threat Behav* 2015;doi: 10.1111/sltb.12153.
 7. Al-Asadi AM, Klein B, Meyer D. Multiple Comorbidities of 21 Psychological Disorders and Relationships with Psychosocial Variables: a Study of the Online Assessment and Diagnostic System within a Web-based Population. *J Med Internet Res* 2015;17(2):e55.
 8. Flensburg-Madsen T, Knop J, Mortensen EL, Becker U, Sher L, et al. Alcohol Use Disorders Increase the Risk of Completed Suicide--Irrespective of Other Psychiatric Disorders. A Longitudinal Cohort Study. *Psychiatry Res* 2009;167(1-2):123-30.
 9. Nock MK, Kessler RC. Prevalence of and Risk Factors for Suicide Attempts Versus Suicide Gestures: Analysis of the National Comorbidity Survey. *J Abnormal Psychol* 2006;115:616-23.
 10. Borges G, Nock MK, Haro Abad JM, Hwang I, Sampson NA, Alonso J, et al. Twelve Month Prevalence of and Risk Factors for Suicide Attempts in the WHO World Mental Health Surveys *J Clin Psychiatry* 2010;71(12):1617-28.
 11. Nock MK, Hwang I, Sampson N, Kessler RC. Mental Disorders, Comorbidity, and Suicidal Behaviors: Results from the National Comorbidity Survey Replication. *Mol Psychiatry* 2010;15(8):868-76.
 12. Assari S, Lankarani MM, Moazen B. Religious Beliefs May Reduce the Negative Effect of Psychiatric Disorders on Age of Onset of Suicidal Ideation Among Blacks in the United States. *Int J Prev Med* 2012a; 3:358-64.
 13. Assari S, Moghani Lankarani M, Moghani Lankarani R; Ethnicity Modifies the Effects of Anxiety and Drug Use on Suicidal Ideation among Black Adults in the United States. *Int J Prev Med* 2012b;3:358-64.
 14. Assari S. Ethnic and Gender Differences in Additive Effects of Socio-economics, Psychiatric Disorders, and Subjective Religiosity on Suicidal Ideation among Blacks. *Int J Prev Med* 2015a;6:53.
 15. Assari S. Synergistic Effects of Lifetime Psychiatric Disorders on Suicidal Ideation among Blacks in the USA. *J Racial Ethnic Health Disparities* 2014a:1-8.
 16. Nock MK, Hwang I, Sampson N, Kessler RC, Angermeyer M, Beautrais A, et al. Cross-national Analysis of the Associations Among Mental Disorders and Suicidal Behavior: Findings from the WHO World Mental Health Surveys. *PLoS Medicine* 2009; 6:e1000123.
 17. Assari S, Caldwell CH. Gender and Ethnic Differences in the Association Between Obesity and Depression Among Black Adolescents. *J Racial Ethn Health Disparities* 2015b;2(4):481-93.
 18. Assari S, Dejman M, Neighbors HW. Ethnic Differences in Separate and Additive Effects of Anxiety and Depression on Self-rated Mental Health Among Blacks. *J Racial Ethn Health Disparities* 2015c:1-8.
 19. Assari S, Watkins DC, Caldwell CH. Race Attribution Modifies the Association Between Daily Discrimination and Major Depressive Disorder Among Blacks: the Role of Gender and Ethnicity. *J Racial Ethn Health Disparities* 2015d;2(2):200-10.
 20. Assari S. Additive Effects of Anxiety and Depression on Body Mass Index among Blacks: Role of Ethnicity and Gender. *Int Cardiovasc Res J* 2014b;8(2):44-51.
 21. Zhang Y, Conner KR, Phillips MR. Case-control Study in China of Risk Factors for Suicide in Men with Alcohol Use Disorders. *J Stud Alcohol Drugs* 2012;73(1):15-20.
 22. Kendler KS, Aggen SH, Knudsen GP, Røysamb E, Neale MC, Reichborn-Kjennerud T. The Structure of Genetic and Environmental Risk Factors for Syndromal and Subsyndromal Common DSM-IV axis I and All Axis II Disorders. *Am J Psych* 2011;168:29-39.
 23. Rzhetsky A, Wajngurt D, Park N, Zheng T. Probing Genetic Overlap Among Complex Human Phenotypes. *Proc Natl Acad Sci U S A* 2007;104:11694-9.

24. Hallfors DD, Waller MW, Ford CA, Halpern CT, Brodish PH, Iritani B. Adolescent Depression and Suicide Risk: Association with Sex and Drug Behavior. *Am J Prev Med* 2004;27: 224-31.
25. Borges G, Angst J, Nock MK, Ruscio AM, Walters EE, Kessler RC. Risk Factors for Twelve-month Suicide Attempts in the National Comorbidity Survey Replication (NCS-R). *Psychol Med* 2006;36:747-57.
26. Borges G, Angst J, Nock MK, Ruscio AM, Kessler RC. Risk Factors for the Incidence and Persistence of Suicide-related Outcomes: A 10-year Follow-up Study Using the National Comorbidity Survey. *J Affect Dis* 2008;105:25-33.
27. Nock MK, Borges G, Bromet EJ, Alonso J, Angermeyer M, Beautrais A, et al. Crossnational Prevalence and Risk Factors for Suicidal Ideation, Plans and Attempts. *Br J Psychiatry* 2008;192:98-105.
28. Nock MK, Kazdin AE, Hiripi E, Kessler RC. Lifetime Prevalence, Correlates, and Persistence of DSM-IV Oppositional Defiant Disorder: Results from the National Comorbidity Survey Replication. *J Child Psychol Psychiatry* 2007;48:703-13.
29. Kessler RC, Borges G, Walters EE. Prevalence of and Risk Factors for Lifetime Suicide Attempts in the National Comorbidity Survey. *Arch Gen Psychiatry* 1999;56:617-26.
30. Rockett IR, Samora JB, Coben JH. The Black-white Suicide Paradox: Possible Effects of Misclassification. *Soc Sci Med* 2006;63(8):2165-75.
31. Shaffer D, Gould M, Hicks RC. Worsening Suicide Rate in Black tTeenagers. *Am J Psychiatry* 1994;151(12):1810-2.
32. Centers for Disease Control and Prevention (CDC). Suicide Among Black Youths – United States, 1980-1995. *MMWR Morb Mortal Wkly Rep* 1998;47:193-6.
33. Griffith EE, Bell CC. Recent Trends in Suicide and Homicide Among Blacks. *JAMA* 1989;262:2265-9.
34. Eaton DK, Kann L, Kinchen S, Ross J, Hawkins J, Harris WA, et al. Youth Risk Behavior Surveillance–United States, 2005. *MMWR Surveill Summ* 2006;55:1-108.
35. Garlow SJ, Purselle D, Heninger M. Ethnic Differences in Patterns of Suicide Across the Life Cycle. *Am J Psychiatry* 2005;162:319-23.
36. Watkins DC, Assari S, Johnson-Lawrence V. Race and Ethnic Group Differences in Comorbid Major Depressive Disorder, Generalized Anxiety Disorder, and Chronic Medical Conditions. *J Racial Ethn Health Disparities* 2015;2(3):385-94.
37. Lankarani MM, Assari S. Association between Number of Comorbid Medical Conditions and Depression Among Individuals with Diabetes; Race and Ethnic Variations. *J Diabetes Metab Disord* 2015;14:56.
38. Jackson JS, Torres M, Caldwell CH, Neighbors HW, Nesse RM, Taylor RJ, et al. The National Survey of American Life: A Study of Racial, Ethnic and Cultural Influences on Mental Disorders and Mental Health. *Int J Methods Psychiatr Res* 2004;13:196-207.
39. Williams DR, Haile R, González HM, Neighbors H, Baser R, Jackson JS. The Mental Health of Black Caribbean Immigrants: Results from the National Survey of American Life. *Am J Public Health* 2007;97:52-9.
40. Williams DR, González HM, Neighbors H, Nesse R, Abelson JM, Sweetman J, et al. Prevalence and Distribution of Major Depressive Disorder in African Americans, Caribbean Blacks, and Non-Hispanic Whites: Results from the National Survey of American Life. *Arch Gen Psychiatr* 2007;64:305-15.
41. Kessler RC, Abelson J, Demler O, Escobar JI, Gibbon M, Guyer ME, et al. Clinical Calibration of DSM-IV Diagnoses in the World Mental Health (WMH) Version of the World Health Organization (WHO) Composite International Diagnostic Interview (WMHCIDI). *Int J Methods Psychiatr Res* 2004b;13:122-39.
42. Joe S, Baser RE, Breeden G, Neighbors HW, Jackson JS. Prevalence of and Risk Factors for Lifetime Suicide Attempts Among Blacks in the United States. *JAMA* 2006;296:2112-23.

43. Joe S, Baser RS, Neighbors HW, Caldwell CH, Jackson JS. 12-month and Lifetime Prevalence of Suicide Attempts Among Black Adolescents in the National Survey of American Life. *J Am Acad Child Adolesc Psychiatry* 2009;48:271-82.
44. Morris P, Maniam T. Ethnicity and suicidal behaviour in Malaysia: A review of the literature. *Transcult Psychiatry* 2001;38:51-62.
45. Ko SM, Kua EH. Ethnicity and Elderly Suicide in Singapore. *Int Psychogeriatr* 1995;7:309-17.
46. Kua EH, Ko SM, Ng TP. Recent Trends in Elderly Suicide Rates in a Multi-ethnic Asian city. *Int J Geriatr Psychiatry* 2003;18:533-6.
47. Kent MM. Immigration and America's Black Population: Population Reference Bureau 2007; 64(4):1-20.
48. Braun KL, Tanji VM, Heck R. Support for Physician-assisted Suicide: Exploring the Impact of Ethnicity and Attitudes Toward Planning for Death. *Gerontologist* 2001;41:51-60.
49. Cummings JR, Ponce NA, Mays VM. Comparing Racial/Ethnic Differences in Mental Health Service Use Among High-Need Subpopulations Across Clinical and School-based Settings. *J Adolesc Health* 2010;46:603-6.
50. King E. Suicide in the Mentally Ill. An Epidemiological Sample and Implications for Clinicians. *Br J Psychiatry* 1994;165:658-63.
51. Alexopoulos GS, Bruce ML, Hull J, Sirey JA, Kakuma T. Clinical Determinants of Suicidal Ideation and Behavior in Geriatric Depression. *Arch Gen Psychiatry* 1999; 56:1048-53.
52. Legleye S, Beck F, Peretti-Watel P, Chau N, Firdion JM. Suicidal Ideation Among Young French Adults: Association with Occupation, Family, Sexual Activity, Personal Background and Drug Use. *J Affect Disord* 2010;123:108-15.
53. Agerbo E, Nordentoft M, Mortensen PB. Suicide Among Young People—Familial, Psychiatric and Socioeconomic Risk Factors. A Nested Case-control Study. *Ugeskr Laeger* 2002;164:5786-90.
54. Bertolote JM, Fleischmann A, De Leo D, Wasserman D. Psychiatric Diagnoses and Suicide: Revisiting the Evidence. *Crisis* 2004;25:147-55.
55. Bertolote JM, Fleischmann A. Suicide and Psychiatric Diagnosis: A Worldwide Perspective. *World Psychiatry* 2002;1:181-5.
56. Assari S, Lankarani MM. Depressive Symptoms Are Associated with More Hopelessness Among White than Black Older Adults. *Front Public Health* 2016;4:82.
57. Beevers CG, Miller IW. Perfectionism, Cognitive Bias, and Hopelessness as Prospective Predictors of Suicidal Ideation. *Suicide Life-Threat Behav* 2004; 34:126-37.