Nativity and DSM-IV Psychiatric Disorders Among Puerto Ricans, Cuban Americans, and Non-Latino Whites in the United States: Results From the National Epidemiologic Survey on Alcohol and Related Conditions

Margarita Alegria, Ph.D.; Glorisa Canino, Ph.D.; Frederick S. Stinson, Ph.D.; and Bridget F. Grant, Ph.D., Ph.D.

Objective: This study examined the risk of lifetime substance use disorders and mood and anxiety disorders between Island-born Puerto Ricans, foreign-born Cuban Americans, and foreign-born non-Latino whites and their U.S.-born counterparts.

Method: Data from the 2001–2002 National Epidemiologic Survey on Alcohol and Related Conditions (NESARC; N = 43,093) were used to derive lifetime prevalence rates of specific DSM-IV psychiatric disorders by subethnicity and nativity group. Logistic regression models were constructed to detect variation in the odds of each psychiatric disorder across groups.

Results: A protective effect of foreign-born nativity in risk for psychiatric disorders was present for all groups but varied according to the assessed disorder. For non-Latino whites, the effect was observed for most specific psychiatric disorders, whereas, for Puerto Ricans and Cuban Americans, the effect was only evident for specific substance use disorders.

Conclusion: The protective effect of nativity against psychiatric morbidity found in other studies among Mexican Americans and non-Latino whites does not entirely generalize to Puerto Ricans and Cuban Americans and may not generalize to individuals of other origins. The results of this study are discussed in terms of potential mechanisms involved in variations in the risk of specific psychiatric disorders among groups defined by nativity and race-ethnicity and the importance of identifying specific cultural components that may serve as risk and protective factors of psychiatric morbidity.

(J Clin Psychiatry 2006;67:56–65)

Received Feb. 3, 2005; accepted May 22, 2005. *From the Center for Multicultural Mental Health Research, Cambridge Health Alliance/ Harvard Medical School, Cambridge, Mass. (Dr. Alegria); the Behavioral Sciences Research Institute, Medical Sciences Campus, University of Puerto Rico, San Juan (Dr. Canino); and the Laboratory of Epidemiology and Biometry, Division of Intramural Clinical and Biological Research, National Institute on Alcohol Abuse and Alcoholism, National Institutes of Health, Department of Health and Human Services, Bethesda, Md. (Drs. Grant and Stinson).*

The National Epidemiologic Survey on Alcohol and Related Conditions was funded by the National Institute on Alcohol Abuse and Alcoholism with supplemental support from the National Institute on Drug Abuse.

The authors report no additional financial or other relationships relevant to the subject of this article.

The views and opinions expressed in this report are those of the authors and should not be construed to represent the views of any of the sponsoring organizations or agencies or the U.S. government.

Corresponding author and reprints: Bridget F. Grant, Ph.D., Ph.D., Laboratory of Epidemiology and Biometry, Room 3077, Division of Intramural Clinical and Biological Research, National Institute on Alcohol Abuse and Alcoholism, National Institutes of Health, M.S. 9304, 5635 Fishers Lane, Bethesda, MD 20892-9304 (e-mail: bgrant@willco.niaaa.nih.gov).

Insufficient data are available concerning whether Latino subgroups differ from non-Latino whites in the risk of psychiatric disorders and the explanations for the possible variation. Although previous epidemiologic data suggest an effect of nativity (U.S.-born vs. foreign-born) on the risk for psychiatric morbidity among Mexican Americans, this effect has rarely been studied among Puerto Ricans and Cuban Americans.[1,2] This relationship is becoming more vital as Latino subethnic groups rapidly grow in size compared with the non-Latino white population.[3]

Four earlier epidemiologic surveys, the Los Angeles site of the Epidemiologic Catchment Area Study (LAECA),[4,5] the Mexican American Prevalence and Services Survey (MAPSS),[6] the National Comorbidity Survey (NCS),[1,7] and the 1998–2000 cohort of 1803 young adults in Miami-Dade, Florida,[2] compared rates of psychiatric disorder between foreign-born Mexican Americans and their U.S.-born counterparts and/or non-Latino whites. Only one of these studies examined rates between U.S.-born and Island-born Puerto Ricans,[1] and only one

  © Copyright 2006 Physicians Postgraduate Press, Inc.

assessed the effect of nativity among Cuban Americans.[2] In these studies,[1,2,4–7] the prevalence of psychiatric disorder among foreign-born Mexican Americans was lower than the rates among U.S.-born Mexican Americans, the total U.S. Latino population, and the total U.S. population. Compared with non-Latino whites, U.S.-born Mexican Americans had higher rates of mood, anxiety, and substance use disorders.[4–7] However, when U.S.-born and Island-born Puerto Ricans were compared, no differences were found in the rates of any psychiatric disorder examined.[1] Similarly, among the young adult Cuban Americans in the Miami-Dade survey, U.S.-born and foreign-born Cuban Americans did not differ in the rates of specific disorders except for hyperactivity disorder.[2]

Although all of these earlier studies[1,2,4–7] found that nativity had a significant impact on the prevalence of psychiatric disorders among Mexican Americans, but not Puerto Ricans or Cuban Americans, they had several limitations. The LAECA[4,5] and MAPSS[6] samples consisted of Mexican Americans in Los Angeles and Fresno, Calif., respectively, and the youth cohort of Turner and Gil[2] resided in Miami-Dade, precluding generalization to the entire U.S. Mexican American and Cuban American populations. Furthermore, the Miami-Dade survey[2] was age limited (ages 19–21 years). The NCS[1,7] was a national survey, but the number of Puerto Ricans (N = 86) was quite small, limiting statistical power and precluding analyses of specific disorders to determine if immigration status affected some disorders but not others. In addition, none of these surveys except the Miami-Dade survey[2] assessed psychiatric disorders according to the American Psychiatric Association's current classification, the *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition (DSM-IV).[8]

Non-Latino white comparison groups in these earlier studies also were limited. The MAPSS,[6] NCS,[1,7] and one LAECA study[9] compared U.S.-born and foreign-born Latino groups with the entire non-Latino white population without regard to nativity, thereby confounding race-ethnicity and immigration status. Only the LAECA study[9] used a U.S.-born non-Latino white comparison group, while none of the earlier studies compared U.S.-born and foreign-born Latinos with foreign-born non-Latino whites. The availability of both U.S.-born and foreign-born non-Latino white comparison groups is crucial in determining whether lower rates of disorders found among foreign-born Mexican Americans are generalizable to foreign-born non-Latino whites.

The availability of U.S.-born and foreign-born Puerto Rican, Cuban American, and non-Latino white comparison groups also importantly provides for a test of major competing hypotheses that can explain variability in the risk of psychiatric morbidity. This approach to examining alternative explanations was recently demonstrated among Mexican Americans and non-Latino whites[10] using data from a nationally representative survey of psychiatric disorders, the 2001–2002 National Institute on Alcohol Abuse and Alcoholism's National Epidemiologic Survey on Alcohol and Related Conditions (NESARC).[11,12]

In that study,[10] the risks of most psychiatric disorders were lower among foreign-born Mexican Americans and non-Latino whites relative to their U.S.-born counterparts, ruling out "social stress" hypotheses of nativity on mental health that predict higher rates among the foreign born. However, this finding, in general, did support the "selection" or "healthy immigrant" hypotheses that predict lower rates among the foreign born because the foreign born with good mental health are more likely to immigrate to the United States than those with poor mental health and, thus, are at lower risk of psychiatric morbidity. Furthermore, that U.S.-born Mexican Americans were at lower risk of most psychiatric disorders compared with U.S.-born non-Latino whites ruled out the "frustrated status" hypothesis. This model predicts higher rates of disorder for U.S.-born Mexican Americans compared with U.S.-born non-Latino whites because U.S.-born Mexican Americans have higher expectations for status attainment relative to their foreign-born counterparts. In addition, the finding that foreign-born Mexican Americans and foreign-born non-Latino whites did not differ in the risk of psychiatric disorders, but U.S.-born Mexican Americans had a clear mental health advantage over U.S.-born non-Latino whites, implicated the role of traditional Mexican American culture as protective against psychiatric morbidity.

The issue of immigrant status (nativity) is of importance, both in terms of policy and needs for service delivery and for a better understanding of the treatment and etiology of mental disorders. Given the large proportion of Latinos among immigrant groups to the United States over the last few decades, a focus on this group is timely and important. Therefore, the major objective of this study was to examine the variations in the risk of specific DSM-IV mood, anxiety, and substance use disorders in a nationally representative sample of U.S.-born and foreign-born Puerto Ricans, Cuban Americans, and non-Latino whites. Oversampling of Latinos in the NESARC importantly yielded a sample of 7995 Latinos, of which 997 were of Puerto Rican origin and 450 were of Cuban origin, allowing for comparisons of specific psychiatric disorders by immigration status among these subethnic Latino groups. In addition, the NESARC also included, for the first time, both U.S.-born and foreign-born non-Latino white groups with which rates of U.S.-born and foreign-born Puerto Ricans and Cuban Americans could be compared for the purpose of testing alternative explanations underlying variations in the observed risk of psychiatric morbidity. A parallel study,[10] using NESARC data and reporting on comparisons between U.S.-born and foreign-born Mexican Americans and their non-Latino white counterparts, was used for comparative purposes.

METHOD

Sample

In 2001–2002, the National Institute on Alcohol Abuse and Alcoholism (NIAAA) conducted face-to-face interviews for the NESARC. A detailed description of the NESARC methodology has been published previously.[11,12] The NESARC consists of a representative sample of the U.S. noninstitutionalized civilian population aged 18 years and older residing in the 50 states and the District of Columbia. The final sample included 43,093 respondents drawn from individual households and group quarters. African Americans, Latinos, and young adults (aged 18 to 24 years) were oversampled. Data were adjusted to account for oversampling and respondent and household nonresponse. The overall response rate was 81%. The 2000 Decennial Census was used to adjust the weighted data to represent the U.S. civilian population across a variety of sociodemographic variables.

Interviewer Training and Field Quality Control

Over 1800 experienced interviewers from the U.S. Census Bureau conducted NESARC interviews using laptop computer–assisted software that included built-in skip, logic, and consistency checks. Interviewers participated in an extensive 10-day training session. Spanish-speaking interviewers from the Census Bureau's 12 regional offices received additional training in the administration of the Spanish version of the NESARC. These specially-trained, Spanish-speaking interviewers administered the NESARC to Latino respondents who preferred to be interviewed in Spanish (15%). Translation and back-translation of the survey instrument were done by the linguistic experts at the Census Bureau.

After completion of the NESARC interview, 2657 respondents were randomly selected to participate in a re-interview study. These interviews served as a check on survey data quality and formed the basis of an additional test-retest reliability study of Wave 1 NESARC measures.[13] Additionally, a random 10% of all respondents were recontacted by U.S. Census Bureau regional supervisors for quality control purposes and to verify the accuracy of the initial interviewer's performance.

Race and Ethnic Background and Other Sociodemographic Measures

Race and ethnicity were determined by self-identification of the respondent's origin or descent. Other sociodemographic variables included age, sex, education, marital status, family income, urbanicity (urban vs. rural), and region of the country. For the purpose of the present study, race-ethnicity and nativity were categorized into 6 groups: (1) Island-born Puerto Ricans, (2) U.S.-born Puerto Ricans, (3) foreign-born Cuban Americans, (4) U.S.-born Cuban Americans, (5) foreign-born non-Latino whites, and (6) U.S.-born non-Latino whites. The non-Latino white group in this study did not include other Latino subgroups (e.g., Mexican Americans, South Americans) or blacks. It should be noted that Puerto Ricans are American citizens and therefore are migrants rather than immigrants. In view of this, *Island-born Puerto Ricans* is a more accurate term than *foreign-born Puerto Ricans*.

Psychiatric Disorder Assessment

The NESARC survey instrument is the NIAAA Alcohol Use Disorder and Associated Disabilities Interview Schedule-DSM-IV Version (AUDADIS-IV).[14] The AUDADIS-IV is a structured diagnostic interview designed for use by lay interviewers. The DSM-IV mood and anxiety disorders assessed in the AUDADIS-IV were major depression, dysthymia, mania, hypomania, panic disorder, social phobia, specific phobia, and generalized anxiety disorder. As described in detail elsewhere,[12] only participants with lifetime mood or anxiety disorders that were not substance induced or due to a general medical condition were included in the analyses. Depressive episodes due to bereavement were also excluded.

In addition to lifetime mood and anxiety disorders, the AUDADIS-IV separately operationalized DSM-IV criteria for alcohol and drug-specific abuse and dependence for 10 classes of drugs, including sedatives, tranquilizers, opiates (other than heroin or methadone), stimulants, hallucinogens, cannabis, cocaine (including crack cocaine), inhalants/solvents, heroin, and other drugs. Consistent with the DSM-IV, the lifetime AUDADIS-IV diagnoses of alcohol abuse required a respondent to meet at least 1 of the 4 criteria defined for abuse in the 12-month period preceding the interview and/or in any 1 year prior to that time. The AUDADIS-IV dependence diagnoses required the respondent to satisfy at least 3 of the 7 DSM-IV criteria for dependence during the past year or in any 1 year prior to the past year. The drug-specific diagnoses of abuse and dependence were derived using the same algorithm described for alcohol use disorders.

The test-retest reliability (kappa = 0.4–0.65) of AUDADIS-IV measures of DSM-IV mood and anxiety disorders has been documented and reported in detail elsewhere[13,15,16] among several general population samples, some of which included substantial percentages of Latinos (21.7%, 33.9%, and 41.1% in Denver, Colo.; Dallas, Tex.; and Los Angeles, Calif., samples, respectively[13]). A test-retest of AUDADIS-IV depression and dysthymia measures also was conducted in a Hispanic population (kappa > 0.60).[17] In addition, mood and anxiety diagnoses were assessed in a series of linear regression analyses that examined the associations between each mood and anxiety disorder and 4 Short Form-12v2 mental disability scales controlling for sociodemographic

Table 1. Sociodemographic Characteristics of Puerto Ricans, Cuban Americans, and Non-Latino Whites by Nativity

Characteristic	Puerto Rican			Cuban American			Non-Latino White		
	Island-Born (N = 434), % (SE)	U.S.-Born (N = 563), % (SE)	Total (N = 997), % (SE)	Foreign-Born (N = 353), % (SE)	U.S.-Born (N = 97), % (SE)	Total (N = 450), % (SE)	Foreign-Born (N = 1541), % (SE)	U.S.-Born (N = 23,262), % (SE)	Total (N = 24,803), % (SE)
Sex									
Male	45.5 (3.18)	46.4 (2.76)	46.1 (2.35)	50.4 (3.56)	48.4 (7.70)	49.9 (2.60)	47.8 (1.34)	48.3 (0.39)	48.3 (0.37)
Female	54.5 (3.18)	53.6 (2.76)	53.9 (2.35)	49.6 (3.56)	51.6 (7.70)	50.1 (2.60)	52.2 (1.34)	51.7 (0.39)	51.7 (0.37)
Age, y									
18–34	22.9 (4.21)	52.8 (3.47)	40.4 (3.18)	17.4 (2.28)	53.0 (6.10)	25.5 (2.04)	29.4 (1.54)	27.6 (0.41)	27.7 (0.40)
35–54	41.3 (2.19)	38.1 (3.05)	39.5 (2.14)	39.0 (3.49)	39.8 (5.68)	39.2 (2.76)	40.4 (1.59)	40.4 (0.40)	40.4 (0.40)
55+	35.7 (3.81)	9.1 (1.62)	20.2 (1.90)	43.7 (2.91)	7.2 (3.20)	35.3 (3.39)	30.2 (1.40)	32.0 (0.42)	31.9 (0.42)
Education									
Less than high school	44.5 (3.18)	23.9 (2.63)	32.4 (2.32)	25.2 (1.91)	7.5 (2.81)	21.2 (2.83)	13.7 (1.83)	10.9 (0.31)	11.1 (0.31)
High school graduate	28.9 (2.62)	25.2 (2.52)	26.7 (1.74)	23.5 (4.72)	28.8 (5.73)	24.7 (4.69)	23.0 (1.31)	30.3 (0.57)	29.8 (0.57)
Some college or higher	26.7 (3.38)	50.9 (3.10)	40.8 (2.84)	51.3 (3.50)	63.7 (5.72)	54.1 (2.65)	63.3 (2.56)	58.8 (0.74)	59.1 (0.72)
Marital status									
Married/living with someone	57.5 (4.32)	54.8 (4.53)	56.0 (3.91)	65.1 (2.34)	60.2 (7.88)	64.0 (2.69)	67.3 (1.27)	64.0 (0.47)	64.2 (0.44)
Widowed/divorced/ separated	23.1 (3.25)	13.6 (2.16)	17.5 (2.54)	21.4 (1.90)	13.0 (4.10)	19.5 (1.66)	15.5 (0.93)	17.8 (0.31)	17.7 (0.31)
Never married	19.4 (2.57)	31.6 (3.53)	26.5 (2.34)	13.6 (1.96)	26.8 (8.06)	16.6 (2.25)	17.2 (1.13)	18.2 (0.42)	18.1 (0.40)
Family income, $									
1–19,999	41.5 (2.95)	31.7 (3.36)	35.8 (2.82)	36.0 (2.33)	9.7 (2.43)	30.0 (3.52)	47.6 (1.77)	43.2 (0.61)	43.5 (0.59)
20,000–34,999	23.5 (2.06)	20.1 (2.33)	21.5 (1.80)	24.0 (2.82)	21.7 (5.61)	23.5 (2.62)	18.1 (1.13)	23.0 (0.40)	22.7 (0.40)
35,000–69,999	28.5 (3.53)	30.6 (2.67)	29.7 (2.54)	25.2 (3.53)	29.0 (7.11)	26.1 (2.82)	19.8 (1.19)	24.3 (0.44)	24.0 (0.41)
70,000 or more	6.5 (1.55)	17.6 (2.42)	13.0 (1.90)	14.8 (3.62)	39.6 (6.50)	20.5 (4.12)	14.5 (1.57)	9.5 (0.48)	9.8 (0.49)
Urbanicity									
Urban	70.4 (9.21)	51.8 (8.82)	59.6 (8.96)	26.1 (4.35)	32.8 (10.02)	27.6 (5.40)	38.0 (7.19)	22.3 (1.42)	23.3 (1.74)
Town	28.9 (9.10)	38.5 (7.55)	34.5 (8.04)	72.7 (4.96)	62.7 (10.43)	70.4 (6.27)	55.9 (6.68)	54.3 (1.97)	54.4 (2.09)
Rural	0.6 (0.47)	9.7 (3.55)	5.9 (2.26)	1.2 (1.07)	4.6 (2.85)	2.0 (1.37)	6.1 (1.15)	23.4 (1.70)	22.3 (1.69)
Region									
Northeast	66.1 (11.11)	51.6 (9.69)	57.6 (10.10)	9.1 (6.71)	16.3 (6.73)	10.8 (6.79)	33.4 (8.64)	20.2 (3.07)	21.0 (3.28)
Midwest	6.0 (3.99)	8.3 (3.68)	7.3 (3.68)	1.0 (0.87)	7.1 (3.88)	2.4 (1.67)	15.1 (5.12)	27.5 (2.99)	26.7 (3.08)
South	25.3 (9.53)	27.9 (7.03)	26.8 (7.69)	86.1 (9.72)	56.0 (12.24)	79.2 (12.14)	23.6 (4.67)	33.4 (2.78)	32.8 (2.85)
West	2.6 (1.11)	12.2 (3.42)	8.2 (2.48)	3.8 (2.89)	20.6 (9.28)	7.6 (5.18)	27.9 (6.39)	18.9 (2.61)	19.5 (2.76)

characteristics, age, and all substance use disorders and other mood and anxiety disorders. The Short Form-12v2 is a reliable and valid measure of disability used in large population surveys.[18] Each mood and anxiety disorder was found to be a highly significant predictor of disability and social/occupational dysfunction assessed independently on the Short Form-12v2.[10,12,19,20]

The test-retest reliabilities of AUDADIS DSM-IV substance use disorders were good to excellent, exceeding kappa = 0.74 for drug diagnoses.[13,15,16,21] The discriminant and convergent, concurrent, construct, and population validities of the AUDADIS-IV alcohol and drug use disorder diagnoses also have been well documented,[22–30] including in the World Health Organization/National Institutes of Health (WHO/NIH) Reliability and Validity Study.[21,31–35]

Statistical Analysis

Sociodemographic characteristics and lifetime prevalence rates of psychiatric disorders were calculated for each of the 6 comparison groups. Logistic regression analyses were then used to examine associations between the comparison groups for each specific psychiatric disorder, controlling for a broad range of sociodemographic factors. Standard errors and 95% confidence limits related to all of these analyses were estimated using Survey Data Analysis (SUDAAN),[36] a statistical package that adjusts for the sample design characteristics of NESARC.

RESULTS

Sociodemographic Characteristics

The distribution of sociodemographic characteristics by nativity among non-Latino whites and Puerto Ricans is shown in Table 1. Of the 24,803 non-Latino white respondents, 1541 were foreign born with the remaining 23,262 U.S. born. There were 997 respondents who identified themselves as Puerto Rican or of Puerto Rican origin or descent, of whom 434 were Island born and the remaining 563 were U.S. born. Compared with non-Latino whites, Puerto Ricans were somewhat younger and more likely to have less than a high school education (32.4% vs. 11.1%), live in an urban area (59.6% vs. 23.3%), and reside in the Northeast (57.6% vs. 21.0%). The Island-born Puerto Ricans were much more likely than the U.S.-born Puerto Ricans to be 55 years or older (35.7% vs. 9.1%), have less than a high school education (44.5% vs. 23.9%), and earn less than $20,000 per year (41.5% vs. 31.7%). However, the Island-born Puerto Ricans were less likely than the U.S.-born Puerto Ricans to be never married (19.4% vs.

Table 2. Lifetime Prevalence of DSM-IV Disorders Among Puerto Ricans, Cuban Americans, and Non-Latino Whites by Nativity

	Puerto Rican			Cuban American			Non-Latino White		
DSM-IV Disorder	Island-Born, % (SE)	U.S.-Born, % (SE)	Total, % (SE)	Foreign-Born, % (SE)	U.S.-Born, % (SE)	Total, % (SE)	Foreign-Born, % (SE)	U.S.-Born, % (SE)	Total, % (SE)
Any disorder	39.5 (4.37)	46.4 (2.93)	43.5 (2.62)	22.3 (4.48)	46.5 (8.08)	27.8 (6.59)	32.3 (2.08)	52.5 (0.21)	51.2 (0.77)
Any alcohol use disorder	14.5 (1.94)	21.4 (2.88)	18.5 (1.88)	4.8 (1.99)	28.1 (6.61)	10.2 (4.60)	16.2 (1.64)	35.0 (0.60)	33.9 (0.68)
Alcohol abuse	9.2 (1.75)	13.1 (1.81)	11.5 (1.34)	3.7 (1.55)	14.8 (4.49)	6.2 (2.72)	9.6 (1.24)	20.8 (0.43)	20.2 (0.48)
Alcohol dependence	5.3 (1.07)	8.3 (2.05)	7.0 (1.26)	1.2 (0.60)	13.3 (5.00)	4 (2.20)	6.6 (0.85)	14.2 (0.35)	13.7 (0.36)
Any drug use disorder	3.7 (1.01)	12.0 (1.88)	8.5 (1.40)	3.1 (0.92)	10.6 (4.31)	4.8 (1.91)	4.8 (0.70)	11.6 (0.33)	11.2 (0.33)
Any drug abuse	2.4 (0.90)	7.2 (1.36)	5.2 (0.93)	2.3 (0.75)	9.0 (4.26)	3.8 (1.48)	3.2 (0.49)	8.9 (0.25)	8.5 (0.25)
Any drug dependence	1.2 (0.43)	4.7 (1.45)	3.3 (0.92)	0.8 (0.57)	1.6 (0.99)	1.0 (0.55)	1.6 (0.50)	2.8 (0.16)	2.7 (0.15)
Any mood disorder	24.1 (3.93)	24.7 (2.55)	24.5 (2.44)	13.9 (5.43)	19.1 (5.46)	15.1 (5.24)	14.7 (1.11)	20.9 (0.39)	20.6 (0.39)
Major depression	21.1 (3.28)	18.3 (1.84)	19.5 (2.01)	9.1 (3.31)	14.9 (4.95)	10.4 (3.32)	12.0 (1.00)	18.2 (0.35)	17.8 (0.36)
Dysthymia	7.6 (2.40)	8.5 (1.76)	8.1 (1.25)	6.1 (2.09)	1.9 (1.53)	5.1 (1.46)	3.1 (0.57)	4.6 (0.16)	4.5 (0.16)
Mania	4.8 (0.98)	5.4 (1.22)	5.1 (0.76)	1.4 (0.82)	5.0 (2.67)	2.3 (1.17)	2.7 (0.64)	3.2 (0.15)	3.2 (0.15)
Hypomania	1.7 (0.45)	3.8 (1.19)	2.9 (0.68)	2.3 (0.41)	0.9 (0.93)	2.0 (0.38)	1.8 (0.38)	2.3 (0.12)	2.3 (0.12)
Any anxiety disorder	21.9 (2.91)	17.1 (1.68)	19.1 (1.43)	9.6 (1.44)	13.6 (4.52)	10.5 (1.72)	12.4 (1.03)	18.7 (0.45)	18.3 (0.45)
Panic disorder	5.9 (1.37)	7.0 (1.62)	6.5 (1.18)	1.7 (0.86)	4.9 (2.21)	2.4 (0.98)	3.4 (0.48)	5.7 (0.19)	5.5 (0.18)
Social phobia	6.1 (1.52)	4.3 (1.03)	5.1 (0.68)	1.2 (0.52)	3.2 (1.95)	1.6 (0.91)	3.4 (0.63)	5.7 (0.22)	5.5 (0.22)
Specific phobia	10.5 (1.84)	7.1 (0.98)	8.5 (1.09)	6.5 (0.99)	5.8 (2.94)	6.4 (1.02)	5.9 (0.61)	10.1 (0.33)	9.8 (0.32)
Generalized anxiety	7.8 (1.64)	4.5 (1.00)	5.8 (0.84)	3.5 (0.72)	3.8 (2.05)	3.5 (0.63)	3.2 (0.52)	4.7 (0.21)	4.6 (0.20)

31.6%), but more likely to reside in urban areas (70.4% vs. 51.8%).

Table 1 also shows the distribution of sociodemographic characteristics by nativity among Cuban Americans. Of the 450 respondents who identified themselves as Cuban in origin, 353 were immigrants or foreign born. Compared with non-Latino whites, Cuban Americans were more likely to have less than a high school education (21.2% vs. 11.1%) and to earn $70,000 or more per year (20.5% vs. 9.8%), less likely to live in rural areas (2.0% vs. 22.3%), and more likely to reside in the South (79.2% vs. 32.8%). Foreign-born Cuban Americans were less likely than U.S.-born Cuban Americans to be 18 to 34 years of age (17.4% vs. 53.0%) and more likely to have less than a high school education (25.2% vs. 7.5%) and to earn less than $20,000 per year (36.0% vs. 9.7%). Moreover, foreign-born Cuban Americans were more likely than U.S.-born Cuban Americans to live in the South (86.1% vs. 56.0%).

Rates of DSM-IV Disorders

Lifetime rates of DSM-IV psychiatric disorders by nativity are shown in Table 2. The non-Latino white rate of any psychiatric disorder (51.2%) was greater than that for Puerto Ricans (43.5%) and Cuban Americans (27.8%). However, the rate of any psychiatric disorder was similar among Island-born Puerto Ricans (39.5%), foreign-born Cuban Americans (22.3%), and foreign-born non-Latino whites (32.3%). Rates were similar for the U.S.-born Puerto Ricans, 46.4%; U.S.-born Cuban Americans, 46.5%; and U.S.-born non-Latino whites, 52.5%. The prevalence of any alcohol use disorder among the Island-born Puerto Ricans and foreign-born non-Latino whites was similar (14.5% and 16.2%), but lower among foreign-born Cuban Americans (4.8%). For foreign-born Cuban Americans, the rates of alcohol use disorder were 3 to 4 times lower as compared with the rates of the other foreign-born groups. For any mood and any anxiety disorder, the Island-born Puerto Rican rates were higher than those of any of the other foreign-born groups. The U.S.-born groups were noticeably similar in rates of drug use disorders. In addition, the U.S.-born respondents evidenced consistently higher rates for both alcohol use and drug use disorders as compared with their foreign-born counterparts. For mood and anxiety disorders, however, the pattern diverged for Puerto Ricans and Cuban Americans, with no or small differences by nativity for these 2 groups. In contrast, lower rates of mood and anxiety disorders were consistently observed for foreign-born non-Latino whites compared with their U.S.-born counterparts.

Table 3 shows the results of a series of logistic regressions that examined associations between Island-born and U.S.-born Puerto Ricans and non-Latino whites for each specific psychiatric disorder, adjusting for differences in age, sex, marital status, urbanicity, region of the country, education, and family income. Column 1 of Table 3 indicates that the odds of alcohol abuse were greater among U.S.-born non-Latino whites compared with U.S.-born Puerto Ricans. However, there were no differences in the risk of drug use, mood disorders, or anxiety disorders between these 2 groups.

Columns 2, 3, 4, and 5 (Table 3) compare the foreign-born to the U.S.-born respondents. U.S.-born non-Latino whites were at greater risk of alcohol and drug use disorders, but not mood or anxiety disorders, compared with Island-born Puerto Ricans (column 2). U.S.-born Puerto Ricans had significantly greater risk of alcohol and drug use disorders (except alcohol dependence), all mood disorders (except hypomania), and panic disorder than foreign-born non-Latino whites (column 3). U.S.-born Puerto Ricans also were at significantly greater risk of drug

Table 3. Adjusted Odds Ratios (ORs)[a] of Lifetime DSM-IV Psychiatric Disorders Among Puerto Ricans and Non-Latino Whites by Nativity

	U.S.-Born Non-Latino Whites vs U.S.-Born Puerto Ricans[b]		U.S.-Born Non-Latino Whites vs Island-Born Puerto Ricans[b]		U.S.-Born Puerto Ricans vs Foreign-Born Non-Latino Whites[b]		U.S.-Born Puerto Ricans vs Island-Born Puerto Ricans[b]		U.S.-Born Non-Latino Whites vs Foreign-Born Non-Latino Whites[b]		Foreign-Born Non-Latino Whites vs Island-Born Puerto Ricans[b]	
DSM-IV Disorder	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)
Any disorder	1.2	(0.9 to 1.4)	1.4	(0.9 to 2.1)	2.0	(1.5 to 2.7)	1.3	(0.9 to 1.9)	2.4	(2.1 to 2.8)	0.5	(0.3 to 0.8)
Any alcohol use disorder	1.8	(1.3 to 2.5)	2.6	(1.7 to 3.8)	1.7	(1.2 to 2.4)	1.1	(0.6 to 1.9)	3.1	(2.5 to 3.8)	0.6	(0.3 to 1.1)
Alcohol abuse	1.5	(1.1 to 2.0)	2.0	(1.3 to 3.3)	1.7	(1.1 to 2.5)	1.0	(0.6 to 1.7)	2.5	(2.0 to 3.2)	0.6	(0.3 to 1.2)
Alcohol dependence	1.8	(1.0 to 3.1)	2.6	(1.7 to 4.0)	1.5	(0.8 to 2.7)	1.3	(0.5 to 3.0)	2.6	(2.0 to 3.3)	0.7	(0.4 to 1.2)
Any drug use disorder	1.0	(0.7 to 1.4)	3.4	(1.9 to 6.0)	3.2	(2.0 to 5.2)	3.1	(1.7 to 5.8)	3.1	(2.3 to 4.2)	0.5	(0.3 to 1.1)
Any drug abuse	1.2	(0.8 to 1.9)	3.6	(1.7 to 7.5)	2.8	(1.6 to 4.9)	2.9	(1.2 to 7.2)	3.4	(2.4 to 4.6)	0.5	(0.2 to 1.3)
Any drug dependence	0.6	(0.3 to 1.2)	2.7	(1.2 to 5.7)	3.5	(1.6 to 7.9)	3.2	(1.0 to 10.3)	2.0	(1.1 to 4.0)	0.6	(0.2 to 1.7)
Any mood disorder	0.8	(0.6 to 1.1)	0.8	(0.6 to 1.3)	2.0	(1.4 to 2.7)	1.0	(0.7 to 1.6)	1.6	(1.3 to 1.9)	0.4	(0.3 to 0.7)
Major depression	1.0	(0.8 to 1.3)	0.8	(0.5 to 1.2)	1.7	(1.2 to 2.4)	0.8	(0.6 to 1.2)	1.7	(1.4 to 2.0)	0.4	(0.3 to 0.6)
Dysthymia	0.6	(0.4 to 0.9)	0.7	(0.4 to 1.3)	2.9	(1.7 to 5.2)	1.2	(0.5 to 3.2)	1.6	(1.1 to 2.2)	0.3	(0.1 to 0.6)
Mania	0.7	(0.4 to 1.2)	0.9	(0.6 to 1.5)	2.6	(1.4 to 4.7)	1.0	(0.5 to 2.1)	1.3	(0.7 to 2.1)	0.3	(0.1 to 0.6)
Hypomania	0.6	(0.3 to 1.1)	1.2	(0.7 to 2.2)	2.2	(1.0 to 5.0)	1.6	(0.7 to 4.0)	1.3	(0.8 to 2.0)	0.9	(0.4 to 2.3)
Any anxiety disorder	1.1	(0.9 to 1.4)	0.8	(0.6 to 1.1)	1.7	(1.2 to 2.2)	0.8	(0.5 to 1.3)	1.7	(1.4 to 2.0)	0.4	(0.3 to 0.6)
Panic disorder	0.8	(0.5 to 1.3)	1.0	(0.6 to 1.6)	3.0	(1.7 to 5.4)	1.5	(0.7 to 3.2)	2.0	(1.4 to 2.8)	0.4	(0.2 to 0.8)
Social phobia	1.3	(0.8 to 2.1)	0.9	(0.5 to 1.6)	1.5	(0.8 to 2.8)	0.7	(0.3 to 1.5)	1.7	(1.2 to 2.5)	0.3	(0.2 to 0.6)
Specific phobia	1.4	(1.0 to 2.0)	0.9	(0.6 to 1.4)	1.4	(0.9 to 2.0)	0.7	(0.5 to 1.2)	1.8	(1.5 to 2.3)	0.4	(0.3 to 0.7)
Generalized anxiety	1.0	(0.6 to 1.6)	0.5	(0.3 to 0.9)	1.7	(1.0 to 3.1)	0.6	(0.3 to 1.3)	1.5	(1.1 to 2.0)	0.3	(0.1 to 0.5)

[a]Odds ratios are adjusted for sociodemographic factors (sex, age, marital status, urbanicity, region of country, education, family income).
[b]Reference group associated with comparison.

Table 4. Adjusted Odds Ratios (ORs)[a] of Lifetime DSM-IV Psychiatric Disorders Among Cuban Americans and Non-Latino Whites by Nativity

	U.S.-Born Non-Latino Whites vs U.S.-Born Cuban Americans[b]		U.S.-Born Non-Latino Whites vs Foreign-Born Cuban Americans[b]		U.S.-Born Cuban Americans vs Foreign-Born Non-Latino Whites[b]		U.S.-Born Cuban Americans vs Foreign-Born Cuban Americans[b]		U.S.-Born Non-Latino Whites vs Foreign-Born Non-Latino Whites[b]		Foreign-Born Non-Latino Whites vs Foreign-Born Cuban Americans[b]	
DSM-IV Disorder	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)
Any disorder	1.2	(0.6 to 2.4)	3.3	(1.9 to 5.6)	1.8	(0.9 to 3.4)	2.6	(1.3 to 5.2)	2.4	(2.1 to 2.8)	1.7	(0.8 to 2.5)
Any alcohol use disorder	1.4	(0.7 to 2.7)	9.5	(3.9 to 23.2)	2.1	(1.1 to 4.2)	5.0	(2.3 to 10.8)	3.1	(2.5 to 3.8)	3.2	(2.1 to 7.9)
Alcohol abuse	1.6	(0.8 to 3.1)	6.3	(2.5 to 15.7)	1.7	(0.8 to 3.5)	3.2	(1.8 to 9.8)	2.5	(2.0 to 3.2)	2.4	(0.9 to 6.2)
Alcohol dependence	1.0	(0.4 to 2.7)	11.7	(4.1 to 33.6)	2.3	(0.8 to 6.7)	6.7	(3.4 to 13.4)	2.6	(2.0 to 3.3)	4.5	(1.4 to 14.9)
Any drug use disorder	1.2	(0.4 to 3.2)	3.7	(2.0 to 6.8)	2.3	(0.7 to 6.8)	3.2	(1.0 to 9.7)	3.1	(2.3 to 4.2)	1.0	(0.4 to 2.4)
Any drug abuse	1.0	(0.3 to 3.1)	3.7	(1.9 to 7.3)	3.1	(0.9 to 11.5)	3.8	(0.7 to 20.9)	3.4	(2.4 to 4.6)	0.6	(0.2 to 1.6)
Any drug dependence	1.8	(0.5 to 6.6)	3.1	(0.7 to 12.6)	0.8	(0.2 to 3.7)	1.2	(0.1 to 9.9)	2.0	(1.1 to 4.0)	2.7	(0.6 to 12.9)
Any mood disorder	1.1	(0.5 to 2.4)	1.5	(0.6 to 3.8)	1.4	(0.6 to 3.2)	1.5	(0.5 to 4.1)	1.6	(1.3 to 1.9)	0.8	(0.3 to 2.0)
Major depression	1.3	(0.5 to 3.0)	2.1	(0.9 to 4.6)	1.4	(0.5 to 3.4)	2.2	(0.6 to 8.3)	1.7	(1.4 to 2.0)	1.1	(0.4 to 2.5)
Dysthymia	2.4	(0.5 to 11.8)	0.7	(0.4 to 1.4)	0.6	(0.1 to 3.2)	0.3	(0.1 to 2.5)	1.6	(1.1 to 2.2)	0.4	(0.2 to 1.0)
Mania	0.6	(0.2 to 1.8)	2.3	(0.8 to 7.2)	2.2	(0.6 to 7.8)	5.6	(0.6 to 53.1)	1.3	(0.7 to 2.1)	1.2	(0.3 to 4.5)
Hypomania	2.5	(0.3 to 19.0)	1.0	(0.7 to 1.5)	0.5	(0.1 to 2.9)	0.4	(0.1 to 4.8)	1.3	(0.8 to 2.0)	0.9	(0.4 to 2.2)
Any anxiety disorder	1.4	(0.6 to 3.0)	1.9	(1.4 to 2.6)	1.1	(0.5 to 2.5)	1.7	(0.7 to 4.3)	1.7	(1.4 to 2.0)	1.1	(0.7 to 1.7)
Panic disorder	1.0	(0.4 to 2.6)	3.1	(1.1 to 8.6)	2.2	(0.9 to 5.5)	2.7	(0.4 to 16.6)	2.0	(1.4 to 2.8)	1.1	(0.3 to 3.6)
Social phobia	1.6	(0.4 to 2.8)	4.4	(1.8 to 10.8)	1.0	(0.2 to 4.0)	2.9	(1.3 to 6.5)	1.7	(1.2 to 2.5)	2.6	(0.8 to 8.5)
Specific phobia	1.7	(0.6 to 4.8)	1.5	(1.0 to 2.1)	1.0	(0.3 to 2.9)	0.9	(0.3 to 3.1)	1.8	(1.5 to 2.3)	0.7	(0.4 to 1.3)
Generalized anxiety	1.2	(0.4 to 3.8)	1.2	(0.8 to 1.9)	1.3	(0.3 to 4.3)	2.3	(0.5 to 10.4)	1.5	(1.1 to 2.0)	0.8	(0.4 to 1.8)

[a]Odds ratios adjusted for sociodemographic factors (sex, age, marital status, urbanicity, region of country, education, family income).
[b]Reference group associated with comparison.

abuse, but not alcohol abuse, mood disorders, or anxiety disorders, relative to Island-born Puerto Ricans (column 4). In contrast, the risk of all psychiatric disorders, except mania and hypomania, was greater for U.S.-born non-Latino whites compared with foreign-born non-Latino whites (column 5). The odds of most mood and anxiety disorders, but not substance use disorders, were significantly greater among Island-born Puerto Ricans compared with foreign-born non-Latino whites (column 6).

Table 4 shows the results of similar comparisons between foreign-born and U.S.-born Cuban Americans and non-Latino whites for specific psychiatric disorders adjusting for sociodemographic factors. Column 1 of Table 4 indicates that the risk of all specific psychiatric disorders did not differ between U.S.-born Cuban Americans and U.S.-born non-Latino whites.

Columns 2, 3, 4, and 5 (Table 4) compare the foreign-born respondents with the U.S.-born respondents. Col-

umn 2 indicates that U.S.-born non-Latino whites are at greater risk of alcohol and drug use disorders (except drug dependence), panic disorder, and social phobia, but not other mood or anxiety disorders, compared with foreign-born Cuban Americans. There were no differences found in the odds of each specific psychiatric disorder between U.S.-born Cuban Americans and foreign-born non-Latino whites, except for any alcohol use disorder (column 3).

U.S.-born Cuban Americans had a greater risk of alcohol abuse and dependence compared with foreign-born Cuban Americans, but there were no differences in the risk of drug use, mood disorders, or anxiety disorders (except social phobia) between these 2 groups (column 4; Table 4). In contrast, the odds of most specific psychiatric disorders among non-Latino whites were significantly greater among the U.S.-born than foreign-born respondents, with the exceptions of manic and hypomanic disorders (column 5).

Column 6 of Table 4 indicates that the odds of all psychiatric disorders, except any alcohol use disorder and alcohol dependence, did not differ between the Cuban American and non-Latino white foreign-born respondents.

DISCUSSION

Nativity was differentially associated with morbidity of psychiatric disorders. Foreign-born non-Latino whites, as well as foreign-born Mexican Americans,[10] had lower prevalence rates of most psychiatric disorders relative to their U.S.-born counterparts, suggesting that nativity may be an important protective factor for psychiatric disorders in these groups. However, our findings also revealed that, among Puerto Ricans and Cuban Americans, the nativity effect varied by specific psychiatric disorder. The risk of specific substance use disorders, but not mood or anxiety disorders, was generally greater among the U.S.-born respondents compared with the Island- or foreign-born respondents. These results confirm those of several other investigations[1,4,6,10] that have found that U.S.-born Mexican Americans and U.S.-born non-Latino whites have greater risk of substance use disorders than their foreign-born counterparts. In contrast, these findings are at variance with previous studies that did not find that the rates of any specific disorder, including substance use disorders, differed among U.S.-born and foreign-born/Island-born Cuban Americans and Puerto Ricans.[1,2]

The consistency of these results on the effects of nativity with regard to substance use disorders across several Latino subgroups and non-Latino whites highlights their robustness. The consistency of these results found in this and in earlier studies, however, suggests that factors other than nativity could also play an important role in placing migrants and immigrants at risk for substance use disorders. The high availability of drugs in the United States may be one important contributing factor. Vega et al.[37] state that cultural assimilation into societies like the United States with high rates of substance use, coupled with assimilation toward the norms and values of that culture regarding drug use, results in an accelerated increase of substance use disorders. However, greater availability of drugs in the United States alone cannot explain these results, since countries like Puerto Rico and Mexico with extensive drug production and trafficking consistently show low rates of substance use disorders,[38–42] possibly because of limited consumption or strong family and societal values against substance use.[41]

In this study, there were no differences found in the risk of most mood and anxiety disorders between Island- or foreign-born and U.S.-born Puerto Ricans and Cuban Americans. These results are in marked contrast to those found among non-Latino whites and Mexican Americans, where the odds of specific mood and anxiety disorders were significantly greater among the U.S.-born respondents relative to the foreign-born respondents. Although the reasons underlying these race-ethnic subgroup differences are not yet clear, it is apparent that social stress hypotheses of immigration and mental health that would predict greater risk of psychiatric disorders among the foreign-born respondents cannot explain these results. The greater stress hypothesized among the foreign-born Cuban Americans and Island-born Puerto Ricans relative to their U.S.-born counterparts, due to low socioeconomic status and/or adapting to a new culture, was not borne out by these results.

To our knowledge, this is the first time that the epidemiology of psychiatric disorders of Island-born and U.S.-born Puerto Ricans has been compared with that of foreign-born and U.S.-born non-Latino whites. Because of this, our finding of greater risk of anxiety and mood disorders for U.S.-born Puerto Ricans compared with foreign-born non-Latino whites, even after adjusting for sociodemographic characteristics, was surprising. A similar finding was not found among U.S.-born Cuban Americans (or U.S.-born Mexican Americans). If the same effect had been observed in the other 2 Latino groups, a likely explanation would have been the stressful effects of minority status. However, the pattern for Puerto Ricans diverges from that of the other Latino groups, suggesting that they may differ on key cultural issues, or other factors, different than Latino culture (like reactions to discrimination). These factors may play a more important role in psychiatric morbidity among Puerto Ricans than Cuban Americans or Mexican Americans. Possibly, different reactions to discrimination and stereotyping[33] may be explained by less tolerance of discrimination on the part of Puerto Ricans. Puerto Ricans may be more subject to continuous discrimination than Mexicans or Cuban Americans by not acculturating into a white racial identity.[43] The first Puerto Rican migrants, although U.S. citi-

zens, came into the United States stigmatized by the public perception that they migrated because of massive unemployment on the Island and the desire to be supported by welfare.[44] It is within this historical context that Puerto Ricans might have adopted a heightened racial and ethnic identity, rejecting a white identity, to buffer the risks of psychiatric disorders relative to Mexican and Cuban Americans.

Burnam et al.[4] suggested that foreign-born Mexican Americans from Los Angeles were at lower risk of psychiatric disorders than those born in the U.S., in part, because of a selection process in which healthier individuals were more likely to migrate (the "healthy immigrant" hypothesis). This model predicts that the foreign-born, irrespective of nativity, would have lower risks of psychiatric morbidity. Although this hypothesis was confirmed for the most part among Mexican Americans when compared with non-Latino whites in the study conducted by Grant et al.,[10] this model was not entirely supported by the results of this study. The healthy immigrant model could explain (1) the lower risk of most specific psychiatric disorders among foreign-born non-Latino whites compared with U.S.-born non-Latino whites, (2) the lower risk of most disorders among foreign-born non-Latino whites compared with U.S.-born Puerto Ricans, and (3) the lower risk of specific substance use disorders among foreign-born Cuban Americans and Island-born Puerto Ricans compared with U.S.-born non-Latino whites and their U.S.-born subethnic counterparts. However, the healthy immigrant hypothesis cannot account for the similarity in the risk of most psychiatric disorders between foreign-born non-Latino whites and U.S.-born Cuban Americans and most mood and anxiety disorders among foreign-born Cuban Americans and Island-born Puerto Ricans compared with U.S.-born non-Latino whites and each of their U.S.-born counterparts, respectively.

Despite the mixed evidence for the healthy migrant model found in this study and that of Grant et al.,[10] selection processes are unlikely to entirely explain the results for Cuban Americans, Puerto Ricans, or Mexican Americans. Psychiatric epidemiology studies performed in Mexico[37] report similar (but not lower) rates of psychiatric disorder as those observed among foreign-born Mexican Americans in the United States. Similar studies comparing Island-born Puerto Ricans with U.S.-born Puerto Ricans and foreign-born and U.S.-born Cuban Americans are not available for the adult population. However, comparison of Island-born and U.S.-born Puerto Rican adolescents with regard to drug use shows the protective effect of nativity.[45,46] Taken together, these results suggest that several processes may be operating to produce the observed effects of nativity found in this study.

Evidence found in some previous studies,[4,6] but not all,[10] examining mental health among Mexican Americans for the "frustrated status hypothesis" also cannot explain the results of this study. This model posits that U.S.-born Latinos, having higher expectations for status attainment, may be more distressed and experience a greater sense of deprivation and greater risk of psychiatric morbidity than their foreign-born counterparts. This model predicts that U.S.-born Puerto Ricans and Cuban Americans will have higher rates of disorder than U.S.-born non-Latino whites. However, as previously mentioned, U.S.-born Puerto Ricans and U.S.-born Cuban Americans demonstrated similar risks of psychiatric disorders compared with U.S.-born non-Latino whites. However, rates of psychiatric disorders among the U.S.-born non-Latino whites compared with their U.S.-born Latino counterparts might be connected to their subjective assessment of social status, once born in the United States. Social status expectations in U.S.-born Latinos might be anchored relative to the perceived status attainment of peers. These expectations might vary depending on whether the network of peers is U.S. born or Latino foreign born, with variations in what is defined as successful social status, once born in the United States. In tight ethnic enclaves of densely populated Latino communities like Miami or Fresno, perceived status attainment might be equated with that reference group more than the actual U.S. standard, helping Latinos reintegrate in U.S. society with a sense of success.

Grant et al.[10] also found support for the role of traditional cultural retention as a protective factor of the mental health of individuals of Mexican descent. In that study, foreign-born Mexican Americans and non-Latino whites did not differ in the risk of psychiatric disorders, but U.S.-born Mexican Americans had a clear mental health advantage over U.S.-born non-Latino whites, suggesting that traditional values related to strong family cohesion and religiosity may be protective against psychiatric morbidity. The findings from this study suggest that the buffering effects of cultural retention found among Mexican Americans may not entirely generalize to all other Latino subgroups of the population. Although Island-born Puerto Ricans had greater odds of most mood and anxiety disorders compared with foreign-born non-Latino whites, there were no such differences observed between U.S.-born Puerto Ricans and U.S.-born non-Latino whites. Conversely, there were no differences in the risk of substance use disorders between Island-born Puerto Ricans and foreign-born non-Latino whites, but U.S.-born Puerto Ricans had a mental health advantage over U.S.-born, non-Latino whites with respect to alcohol, but not drug use disorders. In contrast, foreign-born Cuban Americans had a mental health advantage with respect to alcohol dependence over foreign-born non-Latino whites that was not retained among the U.S.-born Cuban Americans (i.e., the rates of all mental disorders, including alcohol dependence, did not statistically differ between U.S.-born Cuban Americans and U.S.-born non-Latino whites).

Taken together, these results suggest that the role of retention of traditional values may be disorder-specific (i.e., protective against alcohol use disorders but not drug use or mood or anxiety disorders) among some Latino subethnic groups (i.e., Puerto Ricans), while exerting great influence (i.e., among Mexican Americans) or little influence (i.e., among Cuban Americans) among others. Understanding the differential impact of cultural retention on psychiatric morbidity among various subethnic Latino subgroups of the population is important and the focus of further analyses using the NESARC data.

In addition to the explanatory models explored in this study, methodological artifacts related to language of the interview or construct bias, such as the instrument not capturing the illness construct in the same way for the migrant or immigrant populations, may, in part, account for the patterns of associations observed between nativity and psychiatric disorders. However, several factors make this an unlikely explanation. Except for the NCS,[7] all other studies that have found nativity to be a protective factor have interviewed the population in their language of choice and with instruments that have been validated and tested for use among Spanish-speaking populations.[2,6,47] The validity and reliability of the Spanish-translated AUDADIS-IV were tested, and good to excellent coefficients were reported.[17] In addition, urine toxicology screening tests have shown that the risk of illicit drug use is much higher among U.S.-born Mexican Americans than among foreign-born Mexican Americans.[48] It is also possible that the smaller sample size of the U.S.-born Cuban American group may have decreased the power to detect differences in the rates of disorder in those comparisons that included this group. However, only 3 comparisons involving U.S.-born Cuban Americans approached, but did not achieve, significance, suggesting that the pattern of results found in the rates of disorder would be the same regardless of whether these differences were actually significant.

In conclusion, the results of this study and those of Grant et al.[10] point to a protective effect of Island- or foreign-born nativity among Puerto Ricans and Cuban Americans for some substance use disorders (and social phobia among Cuban Americans), while this effect generalized to most other psychiatric disorders among Mexican Americans and non-Latino whites. Although the mechanisms involved in explaining these phenomena are not yet clear, these findings underscore the potential interaction of a variety of influences, including contextual factors and selection processes, in producing the observed effects of nativity. Importantly, these processes may differentially impact on the mental health of Latino immigrants from different countries depending on the risk status of national origin, motivations for immigration, and sociopolitical and other historical factors. Further, research among foreign-born and U.S.-born Latino subgroups of the population is sorely needed to understand the effects of nativity on mental health. The findings of this study also suggest that such research be extended to foreign-born and U.S.-born individuals of other origins or descents.

Identifying and understanding the specific components of various cultures that are protective against psychopathology and those that increase the risk of psychiatric morbidity can help form the rationale of future prevention efforts. Understanding how nativity and other cultural factors contribute to psychopathology will also be valuable to clinicians in helping to guide treatment efforts that are culturally sensitive and informed.

REFERENCES

1. Ortega A, Rosenheck R, Alegria M, et al. Acculturation and the lifetime risk of psychiatric and substance use disorders among Hispanics. J Nerv Ment Dis 2000;188:728–735
2. Turner R, Gil A. Psychiatric and substance use disorders in South Florida. Arch Gen Psychiatry 2002;59:43–50
3. Guzmán B. The Hispanic Population: Census 2000 Brief. Washington, DC: US Census Bureau; 2001
4. Burnam MA, Hough R, Karno M, et al. Acculturation and lifetime prevalence of psychiatric disorders among Mexican Americans in Los Angeles. J Health Soc Behav 1987;28:89–102
5. Robins LN, Regier DA, eds. Psychiatric Disorders in America: The Epidemiologic Catchment Area Study. New York, NY: Free Press; 1991
6. Vega WA, Kodoly B, Aguilar-Gaxiola S, et al. Lifetime prevalence of DSM-III-R psychiatric disorders among urban and rural Mexican Americans in California. Arch Gen Psychiatry 1998;55:771–778
7. Kessler RC, McGonagle KA, Zhao S, et al. Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States: results from the National Comorbidity Survey. Arch Gen Psychiatry 1994;51:8–19
8. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition. Washington, DC: American Psychiatric Association; 1994
9. Karno M, Golding JM, Burnam MA, et al. Anxiety disorders among Mexican Americans and non-Hispanic whites in Los Angeles. J Nerv Ment Dis 1989;177:202–209
10. Grant BF, Stinson FS, Hasin DS, et al. Immigration and lifetime prevalence of DSM-IV psychiatric disorders among Mexican Americans and non-Hispanic whites in the United States: results from the National Epidemiologic Survey on Alcohol and Related Conditions. Arch Gen Psychiatry 2004;61:1226–1233
11. Grant BF, Moore TC, Shepard J, et al. Source and Accuracy Statement for Wave 1 of the 2001-2002 National Epidemiologic Survey on Alcohol and Related Conditions. Bethesda, Md: National Institute on Alcohol Abuse and Alcoholism; 2003. Available at: http://www.niaaa.nih.gov. Accessibility verified November 4, 2005
12. Grant B, Stinson F, Hasin D, et al. Prevalence and co-occurrence of substance use disorders and independent mood and anxiety disorders: results from the National Epidemiologic Survey on Alcohol and Related Conditions. Arch Gen Psychiatry 2004;61:807–816
13. Grant BF, Dawson DA, Stinson FS, et al. The Alcohol Use Disorder and Associated Disabilities Interview Schedule-IV (AUDADIS-IV): reliability of alcohol consumption, tobacco use, family history of depression and psychiatric diagnostic modules in a general population sample. Drug Alcohol Depend 2003;71:7–16
14. Grant BF, Dawson DA, Hasin DS. The Alcohol Use Disorder and Associated Disabilities Interview Schedule-DSM-IV Version. Bethesda, Md: National Institute on Alcohol Abuse and Alcoholism; 2001
15. Grant BF, Harford TC, Dawson DA, et al. The Alcohol Use Disorder and Associated Disabilities Interview Schedule (AUDADIS): reliability of alcohol and drug modules in a general population sample. Drug Alcohol Depend 1995;39:7–44
16. Hasin D, Carpenter KM, McCloud S, et al. The Alcohol Use Disorder

and Associated Disabilities Interview Schedule (AUDADIS): reliability of alcohol and drug modules in a clinical sample. Drug Alcohol Depend 1997;44:133–141
17. Canino G, Bravo M, Ramirez R, et al. The Spanish Alcohol Use Disorder and Associated Disabilities Interview Schedule (AUDADIS): reliability and concordance with clinical diagnoses in a Hispanic population. J Stud Alcohol 1999;60:790–799
18. Ware JE, Kosinski M, Turner-Bowker DM, et al. How to Score Version 2 of the SF-12 Health Survey. Lincoln, RI: Quality Metric; 2002
19. Grant B, Stinson F, Dawson D, et al. Co-occurrence of 12-month mood and anxiety disorders and personality disorders in the US: results from the National Epidemiologic Survey on Alcohol and Related Conditions. J Psychiatr Res 2005;39:1–9
20. Grant BF, Hasin DS, Chou SP, et al. Nicotine dependence and psychiatric disorders in the US: results from the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC). Arch Gen Psychiatry 2004;61:1107–1115
21. Chatterji S, Saunders JB, Vrasti R, et al. The reliability of the alcohol and drug use modules of the Alcohol Use and Associated Disabilities Interview Schedule–alcohol/drug disorder revised (AUDADIS-ADR): an international comparison. Drug Alcohol Depend 1997;47:171–185
22. Grant BF. ICD-10 and proposed DSM-IV harmful use of alcohol/alcohol abuse and dependence, United States 1988: a nosological comparison. Alcohol Clin Exp Res 1993;17:1093–1101
23. Grant BF. DSM-III-R and proposed DSM-IV alcohol abuse and dependence, United States, 1988: a nosological comparison. Alcohol Clin Exp Res 1992;16:1068–1075
24. Grant BF. DSM-IV, DSM-III-R, and ICD-10 alcohol and drug abuse/harmful use and dependence, United States, 1992: a nosological comparison. Alcohol Clin Exp Res 1996;20:1481–1488
25. Grant BF. The relationship between ethanol intake and DSM-III-R alcohol dependence: results of a national survey. J Subst Abuse 1993;5:257–267
26. Grant BF, Harford TC. The relationship between ethanol intake and DSM-III-R alcohol dependence. J Stud Alcohol 1990;51:448–456
27. Grant BF, Harford TC. The relationship between ethanol intake and DSM-III alcohol use disorders: a cross-perspective analysis. J Subst Abuse 1989;1:231–252
28. Hasin DS, Grant BF. Draft criteria for alcohol use disorders: comparison to DSM-III-R and implications. Alcohol Clin Exp Res 1994;18:1348–1353
29. Hasin DS, Grant BF. Nosological comparisons of DSM-III-R and DSM-IV alcohol abuse and dependence in a clinical facility: comparison to National HIS88 results. Alcohol Clin Exp Res 1994;18:272–279
30. Hasin DS, Schuckit MA, Martin CS, et al. The validity of DSM-IV alcohol dependence: what do we know and what do we need to know. Alcohol Clin Exp Res 2003;27:244–252
31. Cottler L, Grant B, Blaine J, et al. Concordance of DSM-IV alcohol and drug use disorder criteria and diagnoses as measured by AUDADIS-ADR, CIDI and SCAN. Drug Alcohol Depend 1997;47:195–205
32. Hasin D, Grant B, Cottler L, et al. Nosological comparisons of alcohol and drug diagnoses: a multisite multi-instrument international study. Drug Alcohol Depend 1997;47:217–226
33. Nelson C, Rehm J, Üstün B, et al. Factor structure for DSM-IV substance disorder criteria endorsed by alcohol, cannabis, cocaine and opiate users: results from the World Health Organization Reliability and Validity Study. Addiction 1999;94:843–855
34. Pull CB, Saunders JB, Mavreas V, et al. Concordance between ICD-10 alcohol and drug use disorder criteria and diagnoses as measured by the AUDADIS-ADR, CIDI and SCAN: results of a cross-national study. Drug Alcohol Depend 1997;47:207–216
35. Vrasti R, Grant BF, Chatterji S, et al. The reliability of the Romanian version of the alcohol module of the WHO Alcohol Use Disorder and Associated Disabilities Interview Schedule-Alcohol/Drug-Revised (AUDADIS-ADR). Eur Addict Res 1998;40:89–97
36. Survey Data Analysis (SUDAAN), Version 9.0. Research Triangle Park, NC: Research Triangle Institute; 2004
37. Vega WA, Aguilar-Gaxiola S, Andrade L, et al. Prevalence and age of onset for drug use in seven international sites: results from the international consortium of psychiatric epidemiology. Drug Alcohol Depend 2002;68:285–297
38. Alderete E, Vega W, Kolody B, et al. Effects of time in the United States and Indian ethnicity on DSM-III-R psychiatric disorders among Mexican Americans in California. J Nerv Ment Dis 2000;188:90–100
39. Canino G, Anthony JC, Freeman D, et al. Drug abuse and illicit drug use in Puerto Rico. Am J Public Health 1993;83:194–200
40. Colón H, Robles R, Canino G, et al. Prevalence and correlates of DSM-IV substance use disorders in Puerto Rico. Revista de la Asociación Médica de Puerto Rico 2002;93:12–22
41. Warner L, Canino G, Colón HM. Prevalence and correlates of substance use disorders among older adolescents in Puerto Rico and the United States: a cross-cultural comparison. Drug Alcohol Depend 2001;63:229–243
42. Szalacha L, Erkut S, Garcia Coll C, et al. Discrimination and Puerto Rican children's and adolescents' mental health. Cultur Divers Ethnic Minor Psychol 2003;9:141–155
43. Mason PL. Annual income, hourly wages, and identity among Mexican-Americans and other Latinos. Ind Relat 2004;43:817–834
44. Maldonado DM. The Emigration Dialectic: Puerto Rico and the USA. New York, NY: International Publishers; 1976
45. Amaro H, Whitaker R, Coffman G, et al. Acculturation and marijuana and cocaine use: findings from HHANES 1982–84. Am J Public Health 1990;80(Suppl):54–60
46. Velez C, Ungemack J. Psychosocial correlates of drug use among Puerto Rican youth: generational status differences. Soc Sci Med 1995;1:91–103
47. Burnam MA. The Spanish Diagnostic Interview Schedule. reliability and comparison with clinical diagnoses. Arch Gen Psychiatry 1983;40:1189–1196
48. Vega W, Kolody B, Hwang J, et al. Perinatal drug use among immigrant and native-born Latinas. Subst Use Misuse 1997;32:43–62