IX. Acculturation and Marijuana and Cocaine Use: Findings from HHANES 1982–84

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Abstract: We examined the relation between acculturation and illicit drug use among Hispanics in the United States employing data from the 1982–84 Hispanic Health and Nutrition Evaluation Survey (HHANES). Across all Hispanic groups, acculturation into US society, as reflected in English language use, was associated with higher rates of illicit drug use even after sociodemographic variables such as gender, age, income, and education were considered. Significant interactions between language and education indicated that the predominant use of English was more strongly associated with marijuana and cocaine use among Mexican Americans and Puerto Ricans of lower educational attainment than among those of higher educational attainment. Significant interactions between language use and other factors such as sex, marital status, and place of birth were also associated with marijuana and cocaine use. These results suggest that the experience of acculturation, especially as it relates to drug use, is closely tied to the social and economic context in which an individual lives. [*Am J Public Health* 1990; 80(Suppl): 54–60.]

Introduction

Drug use has long been recognized as a major public health problem in the United States,[1] and increasing indicators of serious use in the last two decades have prompted a surge in research to identify patterns and risk factors for drug use in general populations.[2,3] However, these studies have generally not provided reliable epidemiological data on drug use among minorities, especially Hispanics. When data on Hispanics have been reported, most studies have failed to distinguish between Mexican Americans, Puerto Ricans, and Cuban Americans. Failure to specify results by Hispanic subgroup greatly limits the usefulness of such reports for public health efforts since, by the year 2000, Hispanics will be the largest minority group in the United States.[4] While anecdotal, clinical, and some community-based studies suggest that drug use may be a significant problem in Hispanic communities,[5–11] information on general drug use prevalence and the associated risk factors in specific Hispanic groups is essential for prevention and intervention efforts in this population.

One critical experience shared by all Hispanic subgroups is the process of acculturation or culture change resulting from continuous, first hand contact with the United States culture. Since acculturation may involve changes in attitudes, norms, and practices regarding use of illicit drugs, it is important to understand the relation of acculturation to drug use. Psychoactive drug use among Hispanics may be generally associated with increased levels of acculturation into US norms and lifestyle.[12–15] Some research has suggested[16,17] that acculturation may be more strongly associated with the use of some psychoactive substances, such as alcohol, among women than men. Whether acculturation is also more strongly associated with illicit drug use among women than men has not yet been investigated. While these findings on acculturation are suggestive, their generalizability has been limited due to the select and small samples in the reported studies. Most such studies have been limited to one specific Hispanic group or have not identified the group under study. It is also unclear from previous research whether acculturation is associated with increased drug use in all Hispanic groups. Furthermore, because acculturation is associated with improved socioeconomic status,[18] it is unclear to what extent increased drug use is prompted by economic rather than acculturative factors. Moreover, the possible interactions between acculturation and sociodemographic factors, such as sex and other demographic variables, have not yet been systematically investigated.

This paper investigates the extent to which illicit drug use among Mexican American, Puerto Rican, and Cuban American adults is associated with place of birth and language use as indicators of acculturation, and whether this relation differs across gender, age, and socioeconomic status.

Methods

The methods and sampling design used in the Hispanic Health and Nutrition Evaluation Survey (HHANES) are described in detail elsewhere.[19] Briefly, the HHANES is a complex, multistage, stratified, clustered sample of households drawn from three geographic regions (i.e., Southwestern US, Northeastern US, and Dade County, Florida) with the largest national concentrations of Hispanics. Households were screened for eligible respondents, who were asked general information about individuals in the household. The second part of the study involved physical examination and interview at a nearby mobile examination unit. Questions on drug use were included in the Adult Sample Questionnaire Supplement and administered in the interview portion of the study to individuals 12 to 74 years of age.[19]

The present analyses include respondents 20 years of age and older who self-identified as Mexican American in the Southwestern US sample, Puerto Rican in the Northeastern US sample, or Cuban American in the Dade County, Florida sample and who completed the physical examination and interview portions of the study. All respondents were asked questions on marijuana use, but only those younger than 45 years were asked questions about cocaine use. While the HHANES also included questions on use of inhalants and sedatives, data on these substances are not included in this paper due to an insufficient number of users. The participation rates for those approached, aged 20–74, were 58.4 percent among Cuban Americans, 69.2 percent among Puerto Ricans, and 70.2 percent among Mexican Americans. The non-response rate for drug questions did not exceed 1.3 percent. The Mexican American sample includes 3,303 respondents (ages 20–74) who were asked about marijuana use and 2,054 (ages 20–45) who were asked about cocaine use; the Puerto Rican sample, 1,209 and 673 respondents respectively, and the Cuban American sample, 858 and 348 respondents respectively.

NOTE: Author affiliations are listed elsewhere under CONTRIBUTORS.

Questions on drug use were limited to whether the respondent had ever used the drug in question (lifetime use) and the most recent periods of use. Due to the small number of respondents who reported use in the last month and use in the last six months, analyses were conducted only on lifetime and previous year's use (no/yes) of marijuana and cocaine. Information was also obtained on sociodemographic characteristics such as sex, age, marital status, years of education, current employment status, and yearly household income. The HHANES acculturation measure, originally developed for the Mexican American sample, is based on eight items measuring language use, ethnic identification, and birthplace of respondent and respondent's parents. An analysis of the distribution of these items for Puerto Ricans and Cuban Americans revealed that responses to some of these items are highly skewed, rendering the measure inappropriate for general use across all Hispanic groups. To develop an acculturation measure that was equally applicable to all groups, the highly skewed items were deleted and acculturation was measured by: 1) place of birth (coded as within or outside the continental US); and 2) a language index derived from the simple mean of self-ratings on language spoken, language preferred, language written, and language read (each scored English only = 1, mostly English = 2, both English and Spanish = 3, mostly Spanish = 4, Spanish only = 5), and language of interview (coded as English = 1, Spanish = 5).

Statistical Analyses

Age adjusted rates for marijuana and cocaine use: Marijuana and cocaine use rates were calculated for each Hispanic subgroup by gender. Marijuana and cocaine use rates were calculated adjusting for age by a direct standardization method. That is, each of the three Hispanic samples was weighted to reflect the age distribution of the combined weighted sample which reflects the Hispanic population in the United States. Standard errors were calculated accounting for design effects using the RTIFREQS procedure in SAS.[20] These standard errors were used to calculate 95 percent confidence intervals for drug use rates from each of the three Hispanic populations.

Marijuana and cocaine use by place of birth and language use: Marijuana and cocaine use rates by place of birth and language use were calculated. The RTIFREQS procedure in SAS[20] was employed to calculate use rate estimates and their standard errors while accounting for design effects.

Multivariate analysis to assess relationship of acculturation to drug use controlling for socioeconomic factors: To investigate whether indicators of acculturation were independently associated with drug use after the effects of socioeconomic factors were removed, a series of logistic regression analyses were conducted using LOGIST procedure in SAS.[21] The analyses were conducted separately for Mexican Americans and Puerto Ricans; the number of users in the Cuban American sample was too small for multivariate analysis to be meaningful. Use in the year prior to interview (no/yes) was chosen as the dependent variable for the analyses because it was the most recent measure of drug use with a sufficiently large sample to allow multivariate analyses. The sociodemographic variables in the model were: sex (male/female), respondent's age (continuous), yearly family income (<$20,000/≥$20,000), currently employed (no/yes), years of education (0–17), and marital status (measured by two dummy variables: separated/divorced/widowed [no/yes] and never married [no/yes], with married as the comparison group). The indicators of acculturation included in the model were: birthplace (continental US/not continental US), and the language index score described previously (range from 1 = Only English to 5 = Only Spanish). Proc LOGIST[1] accounts for sample weights but not design effects;[22] therefore standard errors were corrected for a design effect of 1.5 when calculating p-values and confidence limits.

Multivariate analysis to test interactions between acculturation measures and sociodemographic variables: For each Hispanic group and drug, the model described above served as the basic model to which interaction terms were added and tested one at a time. The interaction terms tested were: language use by birthplace, language use by gender, language use by age, language use by income, language use by education, and language use by marital status. Interactions between language use and birthplace and language use and each of the sociodemographic variables in the model were tested individually.

Test of the final model with all interaction terms: A final model for each drug and Hispanic group—which included all sociodemographic variables, language use, place of birth and all significant interactions as determined in the previous step—was then tested. Language use as a measure of acculturation rather than birthplace was chosen for the interactions because preliminary analyses showed this variable to be most closely associated with drug use.

Results

Sample Characteristics

Table 1 presents selected weighted sample characteristics for each Hispanic group. With the exception of the Puerto Rican sample, which was predominantly female, gender representation was approximately equal. Since drug use patterns have been shown to vary substantially by gender, the overrepresentation of females in the Puerto Rican sample of the HHANES needs to be considered in the interpretation of the findings. The Mexican American and Puerto Rican samples were younger, had a lower yearly family income, and have less formal education than the Cuban American sample. The Puerto Rican sample had a greater proportion of individuals who were unemployed and not currently married compared to the other Hispanic samples. Nearly 60 percent of Mexican Americans were born in the United States mainland, while this was true for only 21 percent of Puerto Ricans and 2 percent of Cuban Americans. Scores on the language use index indicate that Cuban Americans used Spanish more than English, Puerto Ricans were equally divided in language use, and Mexican Americans used English more than Spanish.

Drug Use

Age-adjusted rates for marijuana use: The age-adjusted rates shown in Table 2 indicate that nearly half of Mexican American and Puerto Rican men reported having used marijuana at some point in their lives, while 30.7 percent of Cuban American men reported ever using marijuana. Use of marijuana in the previous year among Hispanic men was reported by 26.6 percent of Puerto Ricans, 22 percent of Mexican Americans, and 12.5 percent of Cuban Americans.

Lifetime use of marijuana was reported by 30.8 percent of Puerto Rican women, but only 19.5 percent of Mexican American women and 11.5 percent of Cuban American women. Compared to lifetime use, use of marijuana in the previous year was reported by fewer women than men in all Hispanic groups. Compared to Mexican American (6.6 per-

TABLE 1—Selected Weighted Sample Characteristics of Hispanic Subgroup

Characteristics	Mexican American (N = 3,303)	Puerto Rican (N = 1,209)	Cuban American (N = 858)
	%	%	%
Sex			
Female	50.3	62.7	44.5
Male	49.7	37.3	55.5
Age (years)			
20–29	36.9	32.2	18.8
30–39	27.8	27.4	21.8
40–44[a]	7.5	11.4	10.7
45–49	6.9	8.8	10.9
50+	20.9	20.3	37.8
Yearly family income			
<$20,000	64.6	70.0	57.7
≥$20,000	35.4	30.0	42.3
Employed	62.2	47.6	67.5
Education (years)			
<8	33.7	21.3	27.2
8–11	24.4	31.5	19.0
12	23.8	29.5	23.7
>12	18.1	17.8	30.2
Marital status			
Never married	14.5	23.4	12.6
Married	72.0	51.6	69.3
Sep/Div/Wid	13.5	25.0	18.1
US-born[b]	59.3	21.5	2.3
Language use			
English only	25.2	18.2	4.0
Mostly English	30.3	24.0	7.9
Both equally	12.0	17.4	19.9
Mostly Spanish	19.7	31.2	42.7
Spanish only	12.9	9.2	25.6

a) The age category of 40–49 years is split into two groups because the questions on cocaine use were asked only of respondents ages 20–44.
b) Refers only to individuals born in the continental US.

TABLE 2—Age-adjusted Rates of Drug Use among Hispanic Men and Women (95 percent confidence intervals)

	Mexican American	Puerto Rican	Cuban American
Marijuana	%	%	%
Males	(N = 1,450)	(N = 440)	(N = 373)
Previous year	22.0	26.6	12.5
	(19.2, 24.8)	(21.9, 31.3)	(5.9, 19.1)
Lifetime	48.8	49.5	30.7
	(45.6, 52.0)	(41.3, 57.7)	(24.5, 37.0)
Females	(N = 1,853)	(N = 769)	(N = 485)
Previous year	6.6	12.5	3.8
	(4.7, 8.5)	(9.8, 15.2)	(1.2, 6.4)
Lifetime	19.4	30.8	11.5
	(15.8, 23.0)	(26.9, 34.7)	(5.5, 17.5)
Cocaine			
Males	(N = 903)	(N = 231)	(N = 141)
Previous year	10.8	26.9	17.1
	(7.6, 14.0)	(18.7, 35.1)	(7.5, 26.7)
Lifetime	19.6	40.6	20.3
	(14.6, 24.6)	(32.0, 49.2)	(8.8, 31.8)
Females	(N = 1,151)	(N = 442)	(N = 207)
Previous year	2.1	13.6	2.7
	(0.8, 3.5)	(9.8, 17.4)	(0.0, 5.4)
Lifetime	6.4	21.2	7.2
	(4.9, 7.9)	(16.5, 25.9)	(4.3, 11.0)

cent) and Cuban American women (3.8 percent), Puerto Rican women reported the highest rate of marijuana use (12.5 percent) in the previous year.

Age-adjusted rates for cocaine use: The age-adjusted rates for lifetime cocaine use indicate that 40.6 percent of all Puerto Rican men reported ever using cocaine and 26.9 percent reported using cocaine in the previous year. Among Mexican American men, 19.6 percent reported ever using cocaine and 10.8 percent reported using cocaine in the previous year. One-fifth (20.3 percent) of Cuban American men reported ever using cocaine and 17.1 percent said they used cocaine in the previous year.

Among women, 21.2 percent of all Puerto Rican women reported lifetime use of cocaine, while 6.4 percent of Mexican American and 7.2 percent of Cuban American women reported ever using cocaine. Use of cocaine in the previous year was reported by 13.6 percent of Puerto Rican women but only 2.1 percent of Mexican American and 2.7 percent of Cuban American women.

Marijuana and cocaine use by place of birth and language use: Figures 1 through 4 present the estimates of use and 95 percent confidence intervals (CI) for marijuana and cocaine use in the previous year by birthplace and language index. Use of marijuana and cocaine was reported more often by US-born Hispanic men and women of all groups than by those who were born outside the continental US (see Figures 1 and 2). Overall, the use of marijuana and cocaine use was highest among English-speaking Hispanic men and women than among those who were bilingual, who in turn were generally more likely to report drug use than those who were primarily Spanish-speakers (see Figures 3 and 4). As found in earlier analyses, in comparison to the other Hispanic groups, Puerto Rican men and women reported the highest use of marijuana and cocaine across language categories and birthplace. It should be noted, however, that sample sizes become very small, especially where drug use among Cuban Americans was reported by birthplace and language use, making these estimates highly unstable.

Multivariate Analysis

Table 3 presents odds ratios of socioeconomic and acculturation variables for use of marijuana and cocaine in the previous year among Mexican Americans and Puerto Ricans. The Cuban American sample of users was too small to conduct multivariate analysis. The odds ratios were

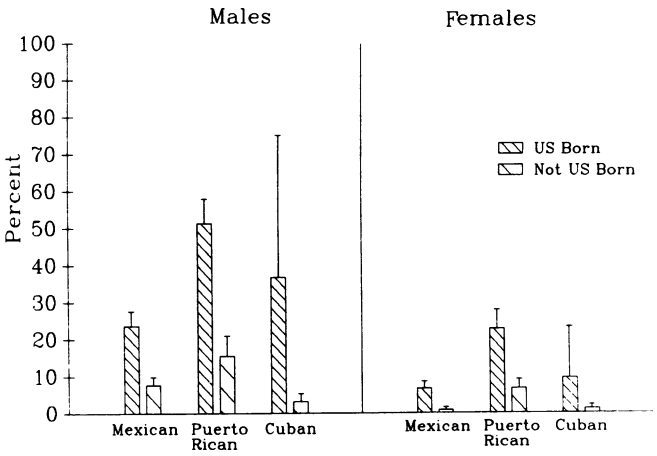

FIGURE 1—Percent of Mexican American, Puerto Rican, and Cuban American males and females who reported using marijuana in the previous year by birthplace
NOTE: Only upper 95 percent confidence limits are presented. The upper and lower limits are equidistant.

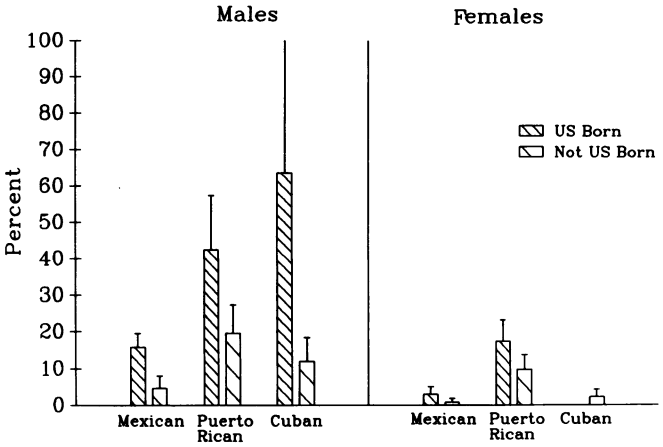

FIGURE 2—Percent of Mexican American, Puerto Rican, and Cuban American males and females who reported using cocaine in the previous year by birthplace
NOTE: Only upper 95 percent confidence limits are presented. The upper and lower limits are equidistant.

developed with separate multivariate logistic regressions for each ethnic group/drug combination.

Marijuana Use

Marijuana use and acculturation effects: In both Mexican Americans and Puerto Ricans, language use was significantly associated with marijuana use in the previous year, even after sociodemographic factors were considered. The odds of using marijuana were eight times greater for Mexican Americans and five times greater among Puerto Ricans who were English-speaking than among Spanish-speakers.

Marijuana use and interaction effects: A final model, which included the significant interactions (see Methods) in addition to the basic model presented in Table 3, was tested separately for Mexican Americans ($\chi^2 = 611.84$, df = 12, $p < .0001$) and Puerto Ricans ($\chi^2 = 236.78$, df = 10, $p < .0001$).

Among Mexican Americans, marijuana use in the previous year was often reported by those who were younger ($p < .0001$), not employed ($p < .05$), separated/divorced/widowed ($p < .0002$), and never married ($p < .03$). In addition, significant interactions between language and sex ($p < .02$), language and education ($p < .05$), and language and never-married status ($p < .03$) were found. These interactions suggest that among Mexican Americans, speaking English was *more* strongly associated with a higher rate of marijuana use in the previous year among: women in comparison to men; those who have less formal education in comparison to those with more formal education; and those who were married compared to those who were not married.

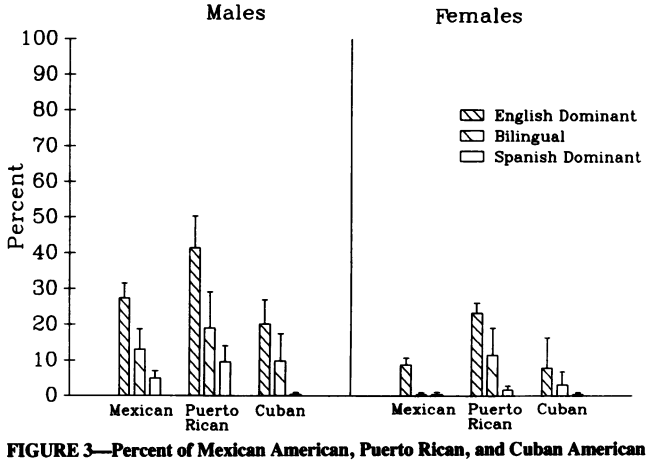

FIGURE 3—Percent of Mexican American, Puerto Rican, and Cuban American males and females who reported using marijuana in the previous year by language use.
NOTE: Only upper 95 percent confidence limits are presented. The upper and lower limits are equidistant.

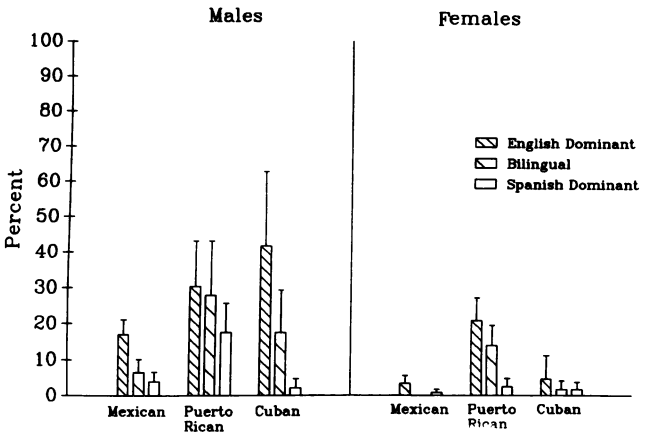

FIGURE 4—Percent of Mexican American, Puerto Rican, and Cuban American males and females who reported using cocaine in the previous year by language use.
NOTE: Only upper 95 percent confidence limits are presented. The upper and lower limits are equidistant.

Among Puerto Ricans, marijuana use in the previous year was most often reported by males ($p < .0001$), young adults ($p < .0001$), individuals with less education ($p < .05$), and those who were predominantly English-speaking ($p < .02$). One marginally significant interaction (language by education, $p < .08$) suggests that use of English among Puerto Ricans was *more* strongly associated with a higher rate of marijuana use in the previous year among those with less education than among those with more education.

Cocaine Use

Cocaine use and acculturation effects: Once sociodemographic variables were taken into account, language use was significantly associated with use of cocaine in the previous year among both Mexican Americans and Puerto Ricans (Table 3). The odds of using cocaine were 25 times greater among Mexican Americans who scored toward the English-dominant end of the language use index than among those who were Spanish-dominant. Among Puerto Ricans, English-speakers were two times more likely than were Spanish-speakers to report cocaine use in the previous year, but the association was weak.

Cocaine use and interaction effects: A final model, which included the basic model presented in Table 3 in addition to all significant interactions, was tested separately for Mexican Americans ($\chi^2 = 257.22$, df = 11, $p < .0001$) and Puerto Ricans ($\chi^2 = 158.29$, df = 12, $p < .0001$).

Among Mexican Americans, cocaine use in the previous year was most likely to be reported by those who were: male ($p < .0001$), young adults ($p < .0001$), less educated ($p < .002$), separated, divorced or widowed ($p < .006$), English-speakers ($p < .0001$), and born in the US ($p < .005$). Two significant interactions between language and birthplace ($p < .001$) and language and education ($p < .001$) suggest that use of English was *more* strongly associated with a higher rate of cocaine use among Mexican Americans who were US-born

TABLE 3—Odds Ratios (95 percent confidence intervals) of Socioeconomic and Acculturation Variables for Use of Marijuana and Cocaine in the Previous Year among Mexican Americans and Puerto Ricans, Multivariate Logistic Regressions

	Mexican Americans		Puerto Ricans	
	Marijuana	Cocaine	Marijuana	Cocaine
Variables	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Sex				
Male vs. female	7.17 (4.78, 10.75)	7.52 (4.11, 13.77)	3.14 (1.93, 5.11)	2.66 (1.58, 4.49)
Age				
20 vs 40 years	8.33 (5.21, 13.32)	6.44 (2.74, 15.15)	6.03 (3.26, 11.15)	9.17 (3.63, 23.16)
Yearly Family Income				
<$20K vs ≥$20K	1.15 (0.81, 1.63)	0.75 (0.47, 1.20)	0.67 (0.40, 1.13)	0.65 (0.36, 1.17)
Employment				
Employed vs not	0.66 (0.45, 0.98)	0.94 (0.53, 1.67)	1.21 (0.72, 2.02)	1.98 (1.12, 3.50)
Education				
8 vs 16 years	0.79 (0.48, 1.29)	1.24 (0.60, 2.54)	0.91 (0.43, 1.91)	0.95 (0.42, 2.16)
Marital Status				
Sep/div/wid vs married	2.53 (1.54, 4.15)	2.75 (1.37, 5.51)	1.68 (0.89, 3.18)	3.70 (2.03, 6.74)
Single vs married	0.84 (0.56, 1.26)	1.14 (0.67, 1.95)	1.10 (0.62, 1.94)	2.55 (1.37, 4.75)
Birthplace				
US vs not US	1.54 (0.75, 3.17)	1.03 (0.50, 2.14)	1.44 (0.83, 2.49)	0.92 (0.37, 2.31)
Language Use				
English vs Spanish	8.62 (3.40, 21.88)	25.44 (6.56, 98.68)	5.32 (1.83, 15.46)	2.19 (0.69, 6.95)
ChiSquare	472.02	198.98	306.71	123.57
p	.0001	.0001	.0001	.0001

than among those who were Mexican-born and among those who had low educational attainment than among those with high educational attainment.

Among Puerto Ricans, cocaine use in the previous year was reported most often by those who were young adults ($p < .0001$), employed ($p < .04$), separated, widowed or divorced ($p < .0001$), never married ($p < .005$), and born in the US mainland ($p < .05$). Significant interactions between language and birthplace ($p < .04$) and language and sex ($p < .005$) suggest that greater use of English was *more* strongly associated with a higher rate of cocaine use among men than among women and among Puerto Ricans born on the island than those born on the US mainland. In addition, a marginally significant interaction between language and education ($p < .07$) suggests that the use of English was *more* strongly associated with cocaine use among Puerto Ricans of low educational attainment than those with higher educational attainment.

Discussion

The results indicate that the rate of marijuana and cocaine use among Hispanics, especially among Puerto Ricans, is higher than that for non-Hispanic Whites.[3] Because previous large-scale studies have not distinguished between the three largest Hispanic groups, the higher rates of drug use among Puerto Ricans may have been diluted by combining them with other Hispanics, who have drug use rates similar to those reported for non-Hispanic Whites.

It is possible that the higher rates of drug use among Puerto Ricans compared to other Hispanic groups reflect regional patterns of drug use. Some support for this interpretation is found in the data from the National Household Survey,[3] in which prevalence of lifetime and previous year marijuana and cocaine use was highest among those living in the Northeast region of the US. However, the lifetime and previous year rates for cocaine use among Puerto Ricans in the HHANES were higher than those reported in the general population of the US Northeast corridor. For example, data from the National Household Survey indicate that 8 percent of women, and 18 percent of men in the general Northeast population have used cocaine at some point in their lives. These rates were much lower than those estimated for Puerto Ricans from the HHANES (21.2 percent and 40.6 percent, respectively). Comparisons of estimates for use of cocaine in the previous year follow a similar pattern, suggesting that use of cocaine cannot be attributed solely to the geographic location.

The results also indicate that acculturation into US society, as reflected by language use, was accompanied by a higher prevalence of illicit drug use. This relationship holds true even when sociodemographic variables are taken into account. Yet, the relative strength of the association between acculturation measures and drug use varied across Hispanic subgroup and by drug. While the cross-sectional design of this study does not allow for an analysis of the process of acculturation, the results lead us to believe that it is important to develop research to further investigate the nature of the acculturation process among Hispanic subgroups and its relationships to drug use.

One possible factor which influences the impact of acculturation on drug use is the social context of drug use in the native country. For example, it is possible that drug

availability and norms in Puerto Rico are closer to those in the US mainland than to those in Mexico or Cuba. This interpretation is supported by previous reports of drug use in Puerto Rico.[23,24] Thus, in order to better understand the factors which impact drug use among Hispanics living in the US mainland, research is needed on social norms and drug use practices in the countries from which Hispanics originate.

The results also suggest that the relation of acculturation to drug use differs across education levels. Acculturation, as measured by language use, had the strongest relation to drug use among those who were least educated. Mexican Americans and Puerto Ricans who were highly acculturated, but had not enjoyed access to educational resources of American society, were most likely to report marijuana and cocaine use. Similar findings indicating that high acculturation is associated with alcohol use among poor Hispanic men have been reported in the literature.[17,25,26] Acculturation, when accompanied by poverty and/or lack of access to education, may resemble what Berry termed "marginalization."[27] In this type of acculturation, an individual loses essential features of his/her culture and at the same time has not entered the larger society. This type of acculturation results in feelings of alienation and loss of identity, is highly stressful, and places an individual at high risk for poor mental health outcomes.[27]

Our findings also suggest that, in some cases, the relationship of acculturation to drug use varies by sex. Once socioeconomic factors were considered, the gender gap in marijuana use was relatively small among Mexican Americans who speak primarily Spanish. This contrasts with the rates of drug use among those who were predominantly English-speaking, for whom the rates were much higher among men than among women. Yet, the relative difference in drug use between Spanish- and English-speakers was larger among women than men. This finding is consistent with reports in the alcohol literature, which suggest that acculturation is more strongly associated with alcohol use among Mexican American women than among Mexican American men.[16,17] However, among Puerto Ricans, acculturation was more strongly associated with cocaine use among men than among women. The findings indicating that acculturation is differentially associated with drug use across educational levels and gender leads us to suspect that acculturation, as it relates to drug use, is integrally affected by the social and economic context in which an individual becomes socialized and lives. The impact of gender roles and educational attainment on drug use and their relation to acculturation among Hispanics deserves empirical investigation.

HHANES, although the first large scale survey to provide information on drug use among various Hispanic groups in the US, is limited in several ways. First, the measures of acculturation used in the HHANES were developed for Mexican Americans and not for Puerto Ricans and Cuban Americans. Second, measures of drug use employed in the HHANES do not allow assessment of the degree or context of drug use or the impact of drug use on functioning. Third, the HHANES employed self-reported measures of drug use, which are vulnerable to multiple threats to validity.[28] Respondents tend to underreport socially undesirable behaviors. What is deemed undesirable behavior may differ among women and men and among those who are not acculturated compared to those who are highly acculturated. If gender roles and culture determine norms regarding drug use, then the validity of self-reported drug use may also vary by these factors. Even with these limitations, the findings have important implications for the study of drug use among Hispanics because they provide evidence of a relationship between acculturation and illicit drug use. The findings also underscore the need for a better understanding of the process of acculturation among Hispanics and other immigrant groups.

The present findings also indicate the need for further studies of drug use among Hispanics, especially Puerto Ricans on the mainland and on the island. Because of the close political, economic, and legal ties between Puerto Rico and the United States mainland, and because of the continuous migration to and from Puerto Rico, drug availability and norms of drug use in the continental US may have a direct effect on drug use among Puerto Ricans living on the island. Yet, Puerto Rico is not usually included in national studies of drug use, leaving a critical gap in knowledge about a substantial Hispanic population in the US. Further, public education campaigns and prevention efforts to reduce initiation into drug use have not typically included Puerto Ricans on the island. Policy initiatives are needed to develop and implement prevention programs aimed at the Puerto Rican population on both the island and in the mainland. Such initiatives should include ongoing mechanisms for gathering information on drug use among Puerto Ricans.

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