

Adolescent Drug Use in Mexico and Among Mexican American Adolescents in the United States: Environmental Influences and Individual Characteristics

MARIA FÉLIX-ORTIZ

University of California, Los Angeles

JORGE A. VILLATORO VELÁZQUEZ

MARIA ELENA MEDINA-MORA

Instituto Mexicano de Psiquiatría

MICHAEL D. NEWCOMB

University of Southern California

The authors compared high school students in Baja California Norte (BCN), Mexico (n = 775), with Mexican American students in Los Angeles (LA), California (n = 516). The students' use of cigarettes, alcohol, marijuana, cocaine, inhalants, and other illicit drugs were compared, because these vary by gender, country, and their age of first drug use and are influenced by demographic variables, individual characteristics, and environmental influences. More BCN students than LA students had used alcohol, but

- *María Félix-Ortiz, Department of Psychology, University of California, Los Angeles; Jorge A. Villatoro Velázquez and María Elena Medina-Mora, División de Investigaciones Epidemiológicas Sociales, Instituto Mexicano de Psiquiatría, Mexico City, Mexico; Michael D. Newcomb, School of Education, Division of Counseling Psychology, University of Southern California.*

This research was conducted in Mexico City and Baja California Norte, Mexico, and in Los Angeles, California. The study was partially supported by a grant from the National Institutes of Health Fogarty International Center (Minority International Research Training Grant TW00061 awarded to the University of California, Los Angeles, and Instituto Mexicano de Psiquiatría); by Instituto Mexicano de Psiquiatría, the Secretaría de Educación, the Consejo Nacional de Ciencia y Tecnología in Mexico; and by Grant DA 01070 from the National Institute on Drug Abuse. María Félix-Ortiz would like to thank Steve Lopez for arranging the collaboration and for his continuing support.

Correspondence concerning this article should be addressed to María Félix-Ortiz, University of California, Los Angeles, Department of Psychology, 1282A Franz Hall, Box 951563, Los Angeles, California 90095-1563. Electronic mail may be sent to felixortiz@psych.ucla.edu.

more LA than BCN students had used illicit drugs and initiated drug use earlier. When demographic variables were influential, they were most powerful and increased the risk for drug use more than environmental factors or individual characteristics. Environmental factors were most influential for boys' drug use, whereas environmental and demographic variables were most influential for girls' drug use.

• adolescents • drug use • Mexican Americans • Mexicans

Cross-cultural studies of drug use may be particularly useful for understanding the drug use patterns of ethnic adolescents in the United States. Cross-cultural studies offer the investigator a sense of "baseline" drug use patterns in the home country, patterns which may elucidate drug use patterns in the host country. For example, Caetano and Medina-Mora (1988) found that alcohol use among Mexican immigrant men in the United States was a combination of Mexican alcohol use patterns, which are characterized by high-quantity drinking, and U.S. alcohol use patterns, which are characterized by high-frequency drinking. The result is high-frequency and high-quantity drinking in Mexican immigrant men. Despite the utility of this kind of analysis, few cross-cultural studies have focused on adolescent drug use beyond identifying prevalence rates for various types of drug use (e.g., Canino, Burnam, & Caetano, 1992). In this article, we present a cross-cultural study of environmental influences and individual characteristics on four types of drug use among Mexican and Mexican American youths.

Prevalence Data and Drug Use Patterns

Studies of drug use in Mexico and the few existing cross-cultural studies offer some foundation for further research. Results from the 1988 Mexican national household survey (Medina-Mora, Rascon, Otero, & Guitierrez, 1988) indicated that 7% of men and 2% of women had ever used one or more illicit drugs (excluding alcohol and tobacco), and only 1% of men and 0.5% of women were active users (30-day preva-

lence). Drug use among high school students has been documented in Mexico for the past 20 years. Although alcohol and tobacco are most frequently consumed, the number of active users of solvents, hallucinogens, and cocaine has increased from 0.61% in 1989 to 1.2% in 1993 (Castro, 1978; Medina-Mora et al., 1993).

Prevalence rates reported in Mexico are considerably lower than those reported in the United States for Mexican Americans. For example, lifetime prevalence of any illicit drug among Mexican American men was 37% as opposed to 4% in Mexican men (Medina-Mora et al., 1988). Across all age groups, prevalence of every type of drug use in Mexico is less than one tenth the level in the United States (Mariño, Romero, & Medina-Mora, 1998). In a large epidemiological study of Fresno County in California, Vega et al. (1998) found that Mexican Americans were at greater risk for drug abuse and drug dependence than Mexican American immigrants and Mexicans residing in Mexico City. Specifically, rates of drug abuse and dependence were seven times higher in Mexican American woman than in immigrant women and were twice as high in Mexican American men than in immigrant men. Furthermore, those immigrants who have resided in the United States for 13 years or more were 6.5 times more likely to have a drug abuse or dependence diagnosis than those with less time in the United States. Finally, Mexicans in Mexico City were very similar to immigrants in their rates of drug abuse and dependence, suggesting that the "robust immigrant" hypothesis, or immigration of the hardest individuals, is a hypothesis requiring further investigation

through direct tests. These investigators suggest that there is an effect of traditional Mexican culture that might serve as a protective factor against drug use.

The first cross-cultural comparisons of students from Mexico (Monterrey, Nuevo Leon) and the United States (Houston, Texas) showed lower prevalence rates of drug use among Mexican students (Wellish & Hays, 1974). However, subsequent cross-cultural comparisons have not been so specific and have tended to rely on a comparison between Mexican nationals and a diverse group of U.S. citizens. For example, a Mexican national survey conducted in 1986 among urban high school students (Medina-Mora et al., 1993) also showed lower rates of drug use when compared with students in the United States (Institute on Social Research, 1987; Johnston, O'Malley, & Bachman, 1992). Some more recent comparisons suggest higher rates of alcohol and tobacco use in Mexico and higher rates of use of other drugs for 13- to 15-year-old U.S. students (Medina-Mora et al., 1995).

Although rates of drug use among Mexicans are lower than rates in the general U.S. population, rates of drug use among Mexicans in Mexican border states are more similar to U.S. rates than to Mexican rates. The first and subsequent household surveys undertaken in Mexico verified lower drug use among Mexican students but also showed that rates of drug use, particularly of heroin and cocaine, were higher in the northern border regions (Castro, Rojas, Garcia, & G. de la Serna, 1986; Terroba & Medina-Mora, 1979). The similarities between border Mexican drug use rates and U.S. rates are probably due to the intense cultural exchange and economic interdependence that can occur in border regions. The exchange or modification of drug use attitudes and behaviors may also occur in these border regions.

Environmental Influences

Availability of drugs and peer drug use have been identified repeatedly as influential en-

vironmental factors in drug use in Latino samples as well as U.S. samples. For example, in Tijuana, Mexico, Suarez-Toacedo (1978) found some evidence of an increase of cases seeking voluntary drug abuse treatment that may have resulted from an increase in availability of narcotic drugs in that region. Peer influence is a risk factor for Latino drug use (Dusenbury, Epstein, Botvin, & Diaz, 1994; Velez & Ungemack, 1995; Warheit et al., 1995; Zapata & Katims, 1994). However, peer pressure was less influential for Latino drug use compared with its influence on drug use in national samples (Gilbert & Cervantes, 1986) and when compared with parental influences (Coombs, Paulson, & Richardson, 1991).

Perceived social tolerance of drug use is a quasienvironmental variable that may influence drug use. Social tolerance can be reflected in how alcohol and tobacco are advertised and distributed or in how communities prosecute illegal drug use or drug sales. Because of the many societal problems associated with drug use in the United States,¹ many attempts have been made to change social norms regarding drug use through restrictions of advertisements, penalties for driving under the influence, and possession of drugs. Mexico is similarly trying to influence social norms. Although television advertisements for hard liquor and cigarettes are commonplace, there is an impressive national campaign to encourage healthy lifestyle habits. Every television advertisement regardless of the product is accompanied by a subtitle reminding the viewer of some healthy lifestyle habit. In the case of alcohol advertisements, the reminder is to use alcohol in moderation. In addition, public service announcements (PSAs) are as long and numerous as paid advertisements. These PSAs target the adult population as well as teenagers and are fairly

¹"United States" is used in this article to refer to the United States of America, and "Mexico" is used to refer to the United States of Mexico.

detailed and candid in the information conveyed.

Nevertheless, Mexico still has a substance abuse problem: ubiquitous alcohol use. In Mexico, alcohol-related problems are frequent, mainly associated with acute intoxication, and derived from infrequent but heavy drinking episodes sustained by cultural double standards. The double standard allows Mexican men to become drunk once in a while but prohibits this in Mexican women; this is a standard supported by both youths and adults of both genders (Caetano & Medina-Mora, 1988). Until cocaine appeared in the Mexican national scene, use of other substances was rare and associated with low social tolerance of use (Medina-Mora et al., 1988; 1995). National data from the United States (Johnston et al., 1992) and Mexico (Villatoro Velázquez et al., 1996) suggest that social tolerance of drug use is lower in Mexico compared with in the United States.

Individual Characteristics

Individual characteristics associated with drug use include emotional distress, history of sexual abuse, delinquent behavior, and perceived harmfulness of drug use. For example, Félix-Ortiz, Muñoz, and Newcomb (1994) found that anxiety, depression, hostility symptoms, and history of suicide attempt were associated with most types of substance use among predominantly Mexican American high school youths. Sexual and physical assault were associated with drug use among Latinas (Berenson, San Miguel, & Wilkinson, 1992).

Drug use can be part of a problem behavior syndrome (Jessor, Donovan, & Costa, 1991) or, at a minimum, a part of a culture of unconventionality among youths who are seeking to develop an identity separate from that of their family and community. Sensation seeking (Simon, Stacy, Sussman, & Dent, 1994), deviant behavior (Zapata & Katims, 1994), tolerance of deviance, and

increased unconventionality (Velez & Ungemack, 1995) were also associated with drug use among Latinos. Simon et al. (1994) found that, among Latinos, high sensation-seeking levels were significantly related to most substance use as well as the number of drugs used, but no such association was found for the non-Latino White students.

Perceived harmfulness of drug use has been repeatedly associated with lower drug use. For example, perceived harmfulness had a stronger impact on decreasing drug use than did avoidance reasons (Newcomb, Fahy, & Skager, 1990). In one study, perceived harmfulness of drug use was inversely related with drug use among U.S. students (Johnston, O'Malley, & Bachman, 1995). Perception of risk associated with various forms of drug use is higher in the United States than in Mexico (Institute on Social Research, 1992) but seems to be diminishing in Mexico (Villatoro Velázquez et al., 1996).

Among the various demographic variables associated with drug use, gender is the one most associated with specific drug use patterns in Mexico. In comparison with other women and Mexican men, Mexican women tend to abstain from using alcohol (Caetano, 1987). Furthermore, Mexican men tend to be heavy-quantity drinkers. This results in a dramatic gender difference in Mexican drinking habits and has been noted in numerous other studies (e.g., Medina-Mora et al., 1988). Many have hypothesized that this gender difference in drinking between Mexican men and women is a result of cultural norms that discourage drinking and drunkenness in women. In one study, it was found that Mexican men and younger Mexican women endorsed negative attitudes toward women drinking and drunkenness (Caetano & Medina-Mora, 1988). However, other studies usually survey only adults and have not looked for such gender differences in younger cohorts. Because the drug use patterns of younger cohorts may offer us a hint of what future drug use patterns may emerge and of what kind of drug-related problems communities

worldwide can anticipate, it behooves us to attend to adolescent drug use trends.

The Present Study

This article uses data from the latest national survey of high school students in Mexico and data from students in Los Angeles, California. In this study, however, we attempt to extend beyond the usual analyses (a) by providing a comparison of prevalence rates by gender and by a specific region of each country (Baja California Norte, Mexico vs. Los Angeles, California) for six types of drug use, (b) by comparing age of first drug use, and (c) by examining the influences of environmental variables and individual characteristics on drug use across the two samples.

Method

Participants

LOS ANGELES. Survey data were collected from 516 ninth- and tenth-grade students of Latino descent, of which over 84% were Mexican American. The students were recruited from four schools: two schools in a city east of Los Angeles where much of the Los Angeles County Latino population is concentrated (based on census estimates), one school in downtown Los Angeles, and one school in the West Los Angeles area. Approximately 1,266 students of all ethnicities were invited to participate, and over half ($n = 688$, 54%) participated; of these 688, 516 were Latino and were included in this study (295 girls and 221 boys). Both parent/guardian consent and participant assent were obtained. Materials were available in both English and Spanish, and special measures were taken to protect the participants' anonymity. All data were collected between mid-December 1991 and mid-February 1992.

BAJA CALIFORNIA NORTE. The source for the Mexico data is the last national school survey conducted among high school students in 1990–1991 by Jorge A. Villatoro Velázquez and María Elena Medina-Mora; this was the first time that rural areas were included in this type of survey and that data were provided on a state basis. The sample design was stratified, by type and by conglomerates; schools and groups within the selected schools were the units of sampling in the two stages. Overall, 32 samples were drawn, one for each state of the Mexican republic. A total of 2,330 groups were selected, and a total of 61,779 students answered the questionnaire. In Baja California, 90 groups were selected for an estimated sample of 3,060 students; 2,611 answered the questionnaire, of which 48% were men and 52% were women. To compare the samples, we selected a probabilistic sample of the Mexican students to match age and gender distribution of the U.S. sample. Answers of 775 Mexican students (331 or 43% boys and 444 or 57% girls) were compared with those provided by their U.S. counterparts.

Mann-Whitney-Wilcoxon tests were conducted to compare sample characteristics of Baja California Norte (BCN) and Los Angeles (LA) boys and to compare BCN and LA girls. Sample characteristics included age, parents' education, respondent's employment status, educational achievement, and school attendance. Most of the teens were 15 to 16 years old. Over two thirds of LA parents had less than a high school diploma compared with slightly over half of the BCN parents ($p < .001$). Most students across both samples were unemployed, but more BCN students were employed than LA students ($p < .01$). BCN students averaged lower grades (about "average") compared with LA students, over half of whom were "above average" in their grades ($p < .001$), and BCN students were absent more days than LA students ($p < .05$). However, this particular result may be misleading as the question differed slightly between the instruments. LA students reported only those days that they were truant, whereas BCN stu-

dents reported days they were absent because of illness. Because truancy is usually punished in the United States, there may have been some underreporting of days truant among U.S. students. Regardless, about two thirds of each sample reported missing only 2 days in the last 6 months of school.

Measures

Twenty-three variables, including demographic variables, indicators of emotional well-being, perceived availability, antisocial behavior, and norms and attitudes, were similar enough across the databases to enable direct comparisons. The questionnaire used in the Mexican study was a self-administered instrument whose reliability and validity have been reported elsewhere and that has been used extensively in Mexican studies conducted during the past 20 years (Castro, 1987; Medina-Mora, Gomez-Mont, & Campillo-Serrano, 1981). Scales used in the LA study have also been used extensively in longitudinal studies of U.S. adolescents (Newcomb & Bentler, 1988).

DRUG USE MEASURES. Four types of drug use measures were obtained that were common across the two databases: drug use lifetime prevalence and age of initiation of drug use. For the LA sample, lifetime prevalence of drug use (whether or not the student had ever used a particular drug) was inferred from the age of initiation items (see, e.g., Stein, Newcomb, & Bentler, 1996). A missing value was assumed to mean that the student had not yet initiated use of the drug, that is, had never used that drug (zero lifetime prevalence). For the Mexican sample, lifetime prevalence of drug use was measured directly using a single item for each type of drug. Because so few students used marijuana, cocaine, crack, inhalants, and other illicit drugs, a new variable called "any illicit drug use" was created and used for some analyses. Age of initiation of drug use for cigarettes, alcohol, marijuana, inhalants, cocaine, and crack were each measured with

a single item requesting the age at which the respondent initiated use of each drug.

INDIVIDUAL CHARACTERISTICS. Six measures of individual characteristics were common across the databases: sadness, perceived harmfulness of cigarette use, perceived harmfulness of alcohol use, perceived harmfulness of drug use, positive history of sexual abuse, and number of delinquent behaviors. Sadness was measured using an item taken from the Center for Epidemiologic Study-Depression scale (CES-D) for adolescents (Roberts, 1980). Responses were recorded on a single 4-point Likert scale ranging from 1 (*not at all*) to 4 (*a lot*). History of sexual abuse was measured by a single item asking directly about lifetime prevalence of sexual abuse, with responses recorded on a dichotomous scale. Delinquent behavior was assessed using the U.S. National Youth Survey Delinquency Scale and was an 11-item scale inquiring about property and personal crime. The score indicated the number of items endorsed and ranged from 0 to 11 ($\alpha = .75$). Perceived harmfulness was measured for cigarettes, alcohol, and illicit drugs and responses indicated "not dangerous," "dangerous," or "very dangerous."

ENVIRONMENTAL INFLUENCES. Five measures of perceived environmental influences on drug use were common across the databases: social intolerance of cigarette use, social intolerance of alcohol use, social intolerance of drug use, availability of drugs, and peer drug use. For both studies, perceived availability, social intolerance, and perception of risk were modeled after items in the Monitoring the Future Survey (Institute on Social Research, 1987). The items used to measure social intolerance of drug use were similarly worded within each questionnaire but varied somewhat across the two instruments. The BCN students were asked about their *peers'* reactions to different types of drug use, whereas the LA students were asked about their *community's* reactions to different types of drug use. The types of drug use, however, were identical across instruments. Three

possible responses for each item reflected degree of social intolerance of drug use ("they would approve," "they would neither approve nor disapprove," and "they would disapprove").

Availability of drugs and peer drug use were also measured for both samples. For both samples, availability of drugs was a three-item, 4-point Likert scale. There was an item to measure perceived availability of marijuana, cocaine, and illicit drugs. Responses included *very hard* (1), *hard* (2), *easy* (3), and *very easy* (4). Therefore, the scale ranged from 3 to 12 ($\alpha = .89$). Peer drug use was measured similarly in terms of how many friends use drugs. Peer drug use was a composite of five items inquiring about the number of peers using crack, cocaine, marijuana, inhalants, and other illicit drugs. Responses were recorded on a 3-point Likert scale as *none* (0), *some* (1), or *most* (2), so the scale ranged from 5 to 15 ($\alpha = .85$).

Results

First, group similarities and differences on the lifetime prevalence of six types of drug use (cigarettes, alcohol, marijuana, cocaine, crack, and inhalants) were identified, and groups were compared using chi-square tests and *t* tests on age of first drug use for four drugs: cigarettes, marijuana, cocaine, and inhalants. Second, logistic regression models were used to determine the relative

weight of demographic, environmental influences, and individual characteristics in predicting drug use prevalence for each population and gender. Interpretation of significant odds ratios were guided by an inspection of bivariate correlations; what appeared to be suppression effects due to multicollinearity are not indicated with significance levels and are not interpreted.

Table 1 presents lifetime prevalence of drug use among BCN and LA adolescents by gender for six types of drug use. Pearson chi-square test results revealed that BCN boys differed from LA boys in their lifetime use of alcohol, marijuana, and inhalants. Although significantly more BCN boys had used alcohol than LA boys (77% vs. 52%, respectively; $p < .001$), more LA boys than BCN boys had used marijuana (24% vs. 8%, respectively; $p < .001$) and inhalants (31% vs. 8%; $p < .001$). Among the girls, differences were apparent on lifetime use of alcohol, marijuana, inhalants, and cocaine. A similar pattern emerged. Although significantly more BCN girls had used alcohol than LA girls (73% vs. 50%; $p < .001$), more LA girls than BCN girls had used marijuana (18% vs. 2%; $p < .001$), inhalants (34% vs. 3%; $p < .001$), and cocaine (6% vs. 1%; $p < .001$). More Mexican adolescents have experience with alcohol than U.S. adolescents, but more U.S. adolescents than Mexican adolescents have experience with illicit drugs.

A few trends in drug use initiation were evident. Table 2 presents *t*-tests results for

TABLE 1 Lifetime Prevalence of Drug Use Among Los Angeles (LA) and Baja California Norte (BCN) Adolescents

Variable	Boys			Girls		
	% LA (n = 221)	% BCN (n = 331)	$\chi^2(1)$	% LA (n = 295)	% BCN (n = 444)	$\chi^2(1)$
Cigarettes	53.8	51.4	0.33	49.8	43.9	2.49
Alcohol	52.0	76.7	36.48***	49.8	72.5	39.36***
Marijuana	23.5	8.2	25.54***	18.3	2.0	60.22***
Cocaine	6.8	4.2	1.74	5.8	1.1	13.19***
Crack	2.7	1.5	0.98	1.0	0.2	2.06
Inhalants	30.8	7.6	50.99***	34.2	2.9	133.17***

*** $p \leq .001$.

gender comparisons of age of first use for BCN and LA adolescents. BCN boys initiated cigarette, marijuana, and cocaine use later than LA boys; BCN boys ranged from 13 to 15 years old when they initiated use of these drugs, whereas LA boys ranged from 12 to 15 years old. BCN girls also tended to initiate drug use later than LA girls. BCN girls initiated cigarette and cocaine use later than LA girls; BCN girls ranged from 14 to 16 years old, whereas LA girls ranged from 12 to 14 years old. Adolescents usually began with cigarette use or inhalant use (youngest ages of initiation) and tended to initiate use of marijuana and cocaine later (older ages of initiation; see Table 2).

Table 3 presents gender comparisons of means or frequencies for each of the independent variables entered into the logistic regression analyses for LA and BCN adolescents. As far as individual characteristics, LA boys perceived alcohol and drugs as more harmful than BCN boys ($p < .001$). More BCN boys than LA boys had a history of sexual abuse ($p < .01$). LA boys had a higher mean number of delinquent behavior than BCN boys ($p < .01$). Girls differed on the sadness variable as well as on perceived harmfulness of drug use. LA girls had more symptoms of sadness ($p < .001$) than BCN girls. LA girls perceived alcohol and drugs as more harmful than BCN girls ($p < .001$).

In terms of perceived environmental influences, BCN adolescents reported higher social intolerance of cigarette, alcohol, and

drug use than LA adolescents ($p < .001$) and less availability of drugs than LA adolescents ($p < .001$). Among boys, BCN boys reported knowing more peers who used drugs than LA boys ($p < .01$).

Logistic Multiple Regression Analyses: LA Versus BCN Adolescents

Logistic regression analyses were used to determine the level of risk predicting drug use in the two populations. Sexual abuse and social intolerance of alcohol use were removed from the analyses because of their high correlations with other variables. Table 4 presents the odds ratio results for the predictors of drug use for LA and BCN adolescents. For simplicity's sake, probabilities of drug use are highlighted in the text only when they were increased by at least 1.5 times. Tests of the full model with all 15 predictors against a constant-only model were statistically reliable, with model chi-squares ranging from 106 to 211 for LA students and 44 to 91 for BCN students (all were significant at $p < .001$), indicating that the predictors as a set reliably distinguished between those who used drugs and those who did not. Percentage of correct classification ranged from 70% to 83% for LA students and 70% to 96% for BCN students. In each of the following sections, we describe the influence of demographics, individual characteristics, or environmental influences in predicting each of five types of drug use:

TABLE 2 Gender Comparisons for Age of First Drug Use for Los Angeles (LA) and Baja California Norte (BCN) Adolescents

First use	Boys						Girls					
	LA (n = 113)		BCN (n = 166)		t test	df	LA (n = 143)		BCN (n = 195)		t test	df
	M	SD	M	SD			M	SD	M	SD		
Cigarettes	12.05	2.15	13.19	2.16	-4.33***	277	12.46	2.03	13.63	2.18	-5.02***	336
Marijuana	12.81	1.93	14.91	1.45	-4.91***	72	13.81	1.82	14.50	1.51	-1.01	54
Cocaine	13.73	2.06	15.36	1.23	-2.55*	27	13.65	1.91	15.90	1.67	-2.30*	16
Inhalants	13.87	2.28	13.52	2.46	0.48	42	13.46	2.00	12.85	1.38	0.93	25

* $p \leq .05$, *** $p \leq .001$.

TABLE 3 Gender Mean Comparisons of Environmental Influences and Individual Characteristics for Los Angeles (LA) and Baja California Norte (BCN) Adolescents

Variable	Boys				Girls			
	LA	BCN	<i>t</i> test	<i>df</i>	LA	BCN	<i>t</i> test	<i>df</i>
Individual characteristics								
Sadness ^a	46.6%	41.1%	1.58		79.3%	66.4%	14.34***	
Perceived harmfulness of cigarette use	2.47	2.42	-0.89	537	2.55	2.51	-0.93	725
Perceived harmfulness of alcohol use	2.54	2.18	-6.21***	532	2.59	2.36	-4.74***	721
Perceived harmfulness of illicit drug use	5.63	5.14	-5.81***	518	5.73	5.42	-4.81***	659
History of sexual abuse ^a	0.9%	5.5%	7.89**		13.6%	9.8%	2.56	
Number of delinquent behaviors	5.43	3.38	2.72**	326	2.14	1.90	0.66	722
Environmental influences								
Social intolerance of cigarette use	2.39	2.58	3.68***	539	2.42	2.74	8.06***	560
Social intolerance of alcohol use	2.27	2.78	10.65***	417	2.35	2.91	14.43***	413
Social intolerance of illicit drug use	10.73	11.45	4.37***	347	10.74	11.76	7.83***	364
Availability of drugs	8.71	5.32	12.15***	397	8.64	4.97	14.84***	557
Peer drug use	7.12	7.66	-2.94**	391	7.03	7.24	-1.40	443

^aChi-square tests (*df* = 1) were used to compare frequencies for these dichotomous variables. For these dichotomous variables, percentages endorsing positively are shown. Otherwise, *t* tests were used to compare means.

p* < .01. *p* < .001.

cigarettes, alcohol, marijuana, inhalants, and any illicit drug use. Any illicit drug use included cocaine, crack, inhalants, marijuana, and other illicit drugs.

DEMOGRAPHICS. In this section, we describe the influence of sex, age, absences, grades, employment, and parents' education in predicting drug use. Parents' education was the strongest demographic predictor of drug use for BCN students, whereas absences was the strongest demographic predictor of drug use for LA students. Although no demographic variables predicted cigarette use among LA students, older respondent age and higher parents' education predicted cigarette use among BCN students. In predicting alcohol use, employment was a significant predictor for LA students, increasing the probability of alcohol use by 1.8 times, and higher parents' education was a

significant predictor for BCN students, increasing the probability of alcohol use by 1.5 times. Absences was the only significant demographic variable, significantly increasing the probability of marijuana, inhalant, and any illicit drug use among LA students by 1.5, 1.6, and 1.9 times, respectively. Sex (boys) was the only significant demographic variable predicting marijuana and any illicit drug use among BCN students, but it was a relatively weak predictor.

INDIVIDUAL CHARACTERISTICS. In this section, we describe the influence of sadness, deviant behavior, perceived harmfulness of drugs, perceived harmfulness of cigarettes, and perceived harmfulness of alcohol in predicting drug use. Deviant behavior predicted nearly every type of drug use except for marijuana use among BCN students, but it was not associated with high probabilities.

TABLE 4 Odds Ratio Results for Predictors of Drug Use for Los Angeles (LA) and Baja California Norte (BCN) Adolescents

Predictor	Cigarettes		Alcohol		Marijuana		Inhalants		Any illicit drug	
	LA	BCN	LA	BCN	LA	BCN	LA	BCN	LA	BCN
Sex	1.16	0.80	1.10	0.74	0.86	0.17**	1.60	0.39	1.67*	0.29**
Age	0.93	1.25*	1.10	1.04	1.13	1.27	0.97	0.75	1.04	1.06
Abusees	1.26	1.24	1.00	1.27	1.46**	1.48	1.60***	1.01	1.88	1.22
Grades	0.83	0.91	1.05	1.21	1.01	2.26	1.14	1.51	0.97	1.58
Employment	1.04	0.99	1.75	1.00	0.90	0.79	1.10	0.86	1.20	0.97
Parents' education	1.13	1.30*	0.83	1.47*	1.13	0.61	0.90	1.71	0.87	1.22
	Demographics									
Sadness	0.84	1.24	1.08	1.78	1.17	4.82*	1.90*	1.45	1.65	1.97
Deviant behavior	1.07**	1.06*	1.05	1.18	1.04*	1.07	1.08***	1.14***	1.08**	1.11***
Perceived harmfulness of illicit drug use	1.16	0.93	1.20	1.05	0.61**	0.45**	1.19	1.02	1.06	0.66*
Perceived harmfulness of cigarette use	0.35***	1.17	0.73	1.42	0.54*	4.15	0.95	1.37	0.86	2.46
Perceived harmfulness of alcohol use	1.54	0.86	0.67	0.83	1.77	1.04	0.64	0.92	0.60*	0.84
	Individual characteristics									
Social intolerance of illicit drug use	1.02	1.09	1.09	1.13	0.83**	0.93	1.11	0.62**	1.02	0.71*
Social intolerance of cigarette use	0.54**	0.47***	0.60**	0.42*	0.90	1.15	0.49**	1.29	0.50**	1.06
Availability of drugs	1.06	1.21***	1.05	1.17*	1.12*	1.13	1.06	1.01	1.07	1.11
Peer drug use	1.33***	1.13	1.32***	1.13	1.42***	1.44**	1.31*	1.17	1.44***	1.31**
	Environmental influences									

* $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$.

Sadness and perceived harmfulness of cigarettes were associated with high probabilities of certain types of drug use.

Among LA students, deviant behavior increased the probability of cigarette use, and perceived harmfulness of cigarettes decreased the probability. Among BCN students, deviant behavior increased the probability of having used cigarettes. In predicting alcohol use, deviant behavior significantly increased the risk for alcohol use among LA students, and deviant behavior and sadness (which increased the probability of alcohol use 1.8 times) were significant predictors for BCN students. Deviant behavior and perceived harmfulness of drugs were significant predictors of marijuana use among LA students. Among BCN students, sadness increased the probability of marijuana use nearly 5 times, whereas perceived harmfulness of drugs decreased the probability of marijuana use. In predicting inhalant use, sadness (which increased the probability of inhalant use 1.9 times) and deviant behavior were significant predictors among LA students, whereas deviant behavior was a significant predictor of inhalant use among BCN students. In predicting illicit drug use, deviant behavior and perceived harmfulness of alcohol were significant predictors for LA students. Deviant behavior and perceived harmfulness of drugs predicted illicit drug use among BCN students.

ENVIRONMENTAL INFLUENCES. In this section, we describe the influence of social intolerance of drug use, social intolerance of cigarette use, availability of drugs, and peer drug use in predicting drug use. Social intolerance of cigarette use and peer drug use were influential predictors of drug use among LA students, whereas influential predictors for drug use among BCN students varied by type of drug, with more serious drug use being predicted by peer drug use. When peer drug use was a significant predictor of drug use, it was the strongest predictor and increased the probability of drug use by a factor of 1.3 to 1.4.

In predicting cigarette use, social intolerance of cigarettes and peer drug use were

significant predictors among LA students, and social intolerance of cigarettes and availability of drugs were significant predictors among BCN students. In predicting alcohol use, social intolerance of cigarette use and peer drug use were significant predictors for LA students, and social intolerance of cigarettes and availability of drugs were significant predictors for BCN students. Social intolerance of drug use, availability of drugs, and peer drug use were significant predictors of marijuana use among LA students, but only peer drug use predicted marijuana use among BCN students. Social intolerance of drug use and peer drug use were significant predictors of inhalant use among LA students. In predicting illicit drug use, social intolerance of cigarette use and peer drug use were significant predictors for LA students, whereas peer drug use and social intolerance of drugs were significant predictors of illicit drug use among BCN students.

*Logistic Multiple Regression Analyses:
Between-Groups Comparisons by Gender*

Table 5 presents the odds ratio results for the predictors of drug use for LA and BCN boys, and Table 6 presents these results for LA and BCN girls. Analyses predicting marijuana use among BCN girls could not be performed owing to the extremely small number of girls who had used marijuana. Tests of the full model with all 14 predictors against a constant-only model were statistically reliable, with model chi-squares ranging from 60 to 113 for LA boys, from 32 to 47 for BCN boys, from 57 to 105 for LA girls, and from 20 to 70 for BCN girls (all were significant at $p < .001$), indicating that the predictors as a set reliably distinguished between those who used drugs and those who did not. Percentage of correct classification ranged from 68% to 84% for LA girls and from 71% to 98% for BCN girls. In each of the following sections, we first review the results for boys, then for girls. Overall, demographic variables were strongest in their in-

TABLE 5 Odds Ratio Results for Predictors of Drug Use for Los Angeles (LA) and Baja California Norte (BCN) Boys

Predictor	Cigarettes		Alcohol		Marijuana		Inhalants		Any illicit drug	
	LA	BCN	LA	BCN	LA	BCN	LA	BCN	LA	BCN
Age	0.92	1.25	1.00	0.99	1.32	1.60	1.07	0.90	1.16	1.22
Absences	1.00	1.54	0.93	1.39	1.26	1.23	1.55*	1.41	1.73**	1.45
Grades	0.75	1.10	1.38	1.03	1.25	4.63*	1.41	2.19	1.24	2.03
Employment	0.70	0.83	2.33*	1.26	0.98	0.96	0.91	1.01	1.45	1.22
Parents' education	1.16	1.08	0.71	1.18	1.24	0.09*	0.93	2.17*	0.86	1.01
	Individual characteristics									
Sadness	1.07	1.59	0.77	1.18	1.33	4.82	2.17*	1.45	1.98	2.11
Deviant behavior	1.09*	1.01	1.06*	1.57*	1.04	1.11	1.10***	1.14**	1.09**	1.09*
Perceived harmfulness of illicit drug use	0.92	0.88	1.24	0.85	0.55*	0.24**	1.11	0.61	0.95	0.45
Perceived harmfulness of cigarette use	0.92***	1.30	0.56	1.66	0.39*	6.31	0.63	1.84	0.55	3.20
Perceived harmfulness of alcohol use	3.20	0.73	0.68	0.54	1.68	1.69	1.00	0.82	0.81	1.05
	Environmental influences									
Social intolerance of illicit drug use	1.02	1.22	1.07	1.18	0.93	1.21	1.21	0.77	1.10	0.87
Social intolerance of cigarette use	0.62	0.25***	0.53*	0.51	0.85	0.52	0.50*	1.54	0.40**	0.86
Availability of drugs	1.11*	1.07	1.10	1.43*	1.14	1.06	1.04	0.80	1.06	0.92
Peer drug use	1.40***	1.18	1.20*	1.04	1.49***	1.45*	1.52**	1.24	1.46***	1.26*

* $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

TABLE 6 Odds Ratio Results for Predictors of Drug Use for Los Angeles (LA) and Baja California Norte (BCN) Girls

Predictor	Cigarettes		Alcohol		Marijuana		Inhalants		Any illicit drug	
	LA	BCN	LA	BCN	LA	BCN	LA	BCN	LA	BCN
Age	0.93	1.31*	1.18	1.05	1.08	0.48	0.90	0.48	1.01	0.88
Absences	1.72**	1.22	1.14	1.16	1.80**	1.72**	1.72**	0.50	2.21***	0.88
Grades	0.87	0.85	0.84	1.35	0.82	1.00	1.00	1.11	0.81	1.50
Employment	1.41	1.21	1.31	0.79	0.57	1.25	1.25	2.22	0.83	0.61
Parents' education	1.12	1.59**	0.90	1.75*	1.15	0.92	0.92	1.05	0.94	1.80
Individual characteristics										
Sadness	0.61	1.03	1.54	1.97	0.88	1.84	1.84	1.20	1.49	1.24
Deviant behavior	1.03	1.18	1.03	1.11	1.04	1.05	1.05	1.13	1.05	1.18**
Perceived harmfulness of illicit drug use	1.28	0.94	1.19	1.14	0.63*	1.18	1.18	4.20	1.11	1.15
Perceived harmfulness of cigarette use	0.50*	1.07	0.99	1.33	0.81	1.36	1.36	0.49	1.25	0.99
Perceived harmfulness of alcohol use	1.08	1.00	0.62	1.07	1.89	0.49*	0.49*	2.96	0.49*	0.95
Environmental influences										
Social intolerance of illicit drug use	1.05	1.01	1.10	1.12	0.79**	1.06	1.06	0.63	0.97	0.56*
Social intolerance of cigarette use	0.44**	0.69	0.62	0.38*	0.86	0.45*	0.45*	0.63	0.56	1.73
Availability of drugs	1.02	1.25***	1.02	1.13	1.10	1.07	1.07	1.15	1.07	1.19
Peer drug use	1.31	1.17	1.42***	1.23	1.41***	1.32***	1.32***	1.32	1.44***	1.78**

* $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

fluence when they were influential. However, individual characteristics were strongest in their influence for boys' drug use, and environmental influences and demographic variables were most influential for predicting drug use among the girls.

DEMOGRAPHICS. Among LA boys, employment significantly predicted alcohol use, and absences significantly predicted inhalants and marijuana use. Among BCN boys, less parents' education and higher student's grades predicted marijuana use, and higher parents' education predicted inhalant use.

Among LA girls, absences significantly increased the probability of cigarette use (1.7 times), marijuana use (1.8 times), inhalant use (1.7 times), and any illicit drug use (2.2 times). Among BCN girls, age and higher parents' education significantly increased the probability of cigarette use (higher parents' education increased the risk by 1.6 times), and higher parents' education significantly increased the probability of alcohol use by a factor of 1.7.

INDIVIDUAL CHARACTERISTICS. Deviant behavior predicted every type of drug use for both groups of boys except for marijuana use among BCN boys; perceived harmfulness of drugs and of cigarettes and sadness were also influential across both groups. Among LA boys, deviant behavior and perceived harmfulness of cigarettes increased the probability of cigarette use. Perceived harmfulness of cigarettes decreased the probability of cigarette use among LA boys. In predicting alcohol use, deviant behavior was the only individual characteristic that increased the probability of alcohol use for both groups of boys. In predicting marijuana use, perceived harmfulness of drugs was a significant predictor for both groups of boys. The risk for inhalant use for LA boys was increased by 2.2 times by sadness and, for both groups of boys, was increased with more deviant behavior. In predicting illicit drug use, deviant behavior was a significant predictor for LA boys, whereas deviant behavior and

perceived harmfulness of drugs were significant predictors for BCN boys.

Perceived harmfulness predicted drug use among LA girls but not among BCN girls; the sole individual influence that predicted drug use among BCN girls was deviant behavior. Among LA girls, perceived harmfulness of cigarettes decreased the likelihood of cigarette use, perceived harmfulness of drugs decreased the risk for marijuana use, and perceived harmfulness of alcohol significantly predicted inhalant and illicit drug use. Among BCN girls, deviant behavior was a significant predictor of cigarette and illicit drug use.

ENVIRONMENTAL INFLUENCES. Social intolerance of cigarettes and peer drug use were influential environmental predictors of drug use among LA boys. Among BCN boys, peer drug use was influential in predicting "hard" drugs (e.g., marijuana, any illicit drug use). Among LA boys, peer drug use and availability increased the risk for cigarette use; social intolerance of cigarettes increased the risk among BCN boys. In predicting alcohol use among LA boys, peer drug use and social intolerance of cigarettes were significant predictors, whereas availability of drugs increased the probability of alcohol use among BCN boys. Only peer drug use predicted marijuana use among both groups of boys (1.5 times for both groups). In predicting inhalant use, social intolerance of cigarettes and peer drug use were significant predictors for LA boys. In predicting illicit drug use, social intolerance of cigarettes and peer drug use increased the probability of illicit drug use among LA boys; peer drug use increased the risk for illicit drug use 1.5 times. Peer drug use predicted illicit drug use among BCN boys.

Peer drug use predicted every type of drug use among LA girls and any illicit drug use among BCN girls. Social intolerance of cigarettes and peer drug use significantly predicted cigarette use among LA girls; availability increased the risk of cigarette use among BCN girls. Peer drug use increased the risk for alcohol use among LA girls, and

social intolerance of cigarettes increased the risk for BCN girls. Social intolerance of drugs and peer drug use significantly predicted marijuana use among LA girls. Social intolerance of cigarettes and peer drug use significantly predicted inhalant use among LA girls. Peer drug use increased the risk for any illicit drug use among LA and BCN girls; social intolerance of drugs also increased the risk for any illicit drug use among BCN girls nearly two times (1.8 times).

Discussion

Study Highlights

A cross-cultural comparison of Mexican American students from Los Angeles with Mexican students from Baja California Norte revealed that more LA students than BCN had used marijuana and inhalants, but more BCN students had used alcohol. LA students initiated cigarette and cocaine use earlier than BCN students, and LA boys initiated marijuana use earlier than BCN boys. Unfortunately, we did not have data for initiation of alcohol use among BCN students; it may be that BCN students initiate alcohol use earlier than LA students.

Although BCN students are more similar to their U.S. counterparts than their southern Mexico compatriots (Terroba & Medina-Mora, 1979), these data show they are still different in their drug use from Mexican American students in LA. Generally, these results confirm the many studies that have identified higher drug use among U.S. students compared with Mexican students (e.g., Mariño et al., 1998; Wellish & Hayes, 1974), but they have extended these earlier results to further elucidate the specific relationship between U.S. Mexican American student drug use patterns and Mexican student drug use patterns.

Group differences in individual characteristics and environmental influences may explain the observed drug use patterns. BCN students reported less availability of drugs than did LA students, which might ac-

count for the lower prevalence of illicit drug use among BCN students. As in other studies (e.g., Villatoro Velázquez et al., 1996), the Mexican students perceived alcohol and drugs to be less harmful than the U.S. students. Less perceived harmfulness of alcohol and drugs in BCN are probably due to the fewer number of drug use prevention programs compared with the number of these programs in the United States. In turn, this might account for the more common use of alcohol in BCN students compared with LA students. However, illicit drug use was more prevalent among LA students, a group who reported higher perceived harmfulness of alcohol and drugs. It may be that the individual characteristic of perceived harmfulness is especially relevant for alcohol use but not for drug use, or that another variable moderates the relationship between perceived harmfulness and drug use. Perceived harmfulness may also be interpreted differently across cultures.

A similar picture emerged in social intolerance of drug use. As in other studies (Medina-Mora et al., 1988, 1995), Mexican students reported higher perceived social intolerance of drug use than U.S. students. Despite higher perceived social intolerance of cigarettes, alcohol, and drug use among BCN students, more of these students than LA students had used alcohol, but fewer had used cigarettes or other drugs. The higher social intolerance may reflect cultural prohibitions regarding drug use related to beliefs that drug use, as distinguished from alcohol use, is associated with immoral behavior and an inability to care for the family. "Immoral" behavior and an inability to care for the family are considered serious transgressions by some Latinos because these violate widely held and cherished Latino values of religious community and familism (Díaz-Guerrero, 1994; D. Vigil, personal communication, October 28, 1999).

Alternatively, it may be that some drug use occurs among adolescents despite perceived social intolerance and because it is a manner of expressing budding autonomy and identity, as well as a way of bonding with

a peer group. In both Mexico and the United States, alcohol is an important component of celebrations and social gatherings, even among the youths, and may serve to facilitate affiliation and bonding. Perceived peer drug use, another type of social influence, might account for the higher alcohol use among the BCN students, because BCN boys reported more peer drug use than LA boys. However, this might be an artifact of definition. What does "friend" mean? There may have been some cultural variation in definition so that some interpreted the term as "best friend" whereas others read it as "classmate/acquaintance."

Demographic variables, individual characteristics, and environmental influences were considered together as a group in how well they predicted the probability of drug use for Mexican American students and for Mexican students, followed by an examination of these variables in predicting the probability of drug use for Mexican American boys versus Mexican boys and for Mexican American girls versus Mexican girls. When each group was considered as a whole, higher parents' education was the significant demographic predictor of cigarette and alcohol use for BCN students, whereas a higher number of absences from school predicted drug use for LA students, especially for LA girls. This tends to confirm earlier results suggesting the greater influence of parent versus peer or school variables for Latino students (Gilbert & Cervantes, 1986), but not in the way typically hypothesized. Some investigators have hypothesized that, for those students who are more steeped in the Mexican culture that values familism and encourages respect of parents and elders, the effect of parent characteristics is significant and will be associated with reduced drug use. However, in this Mexican sample, the effect of parents' education may be reconceptualized as a socioeconomic or social class effect. If we consider education to be a proxy for income, this may account for the association of drug use with increased parents' education. Cigarettes and alcohol are more available to

those who have expendable income, and drinking and smoking may be part of the social class culture.

Increased absences from school were associated with more drug use among U.S. girls, suggesting that it might be important to examine drug use among truant girls and dropout girls because drug use among these groups might be quite high. Usually these girls are not surveyed and so their need is undetected; hence, services may not be extended to these girls. It is particularly important to more carefully follow what occurs with these young women because they are of childbearing years and are from a culture that tends to have a high number of very young mothers. The potential impact of drug use on the children these young women bear and of sexual conduct (e.g., unprotected sex or unwanted sex) is unknown and an area for further study. Prevention and treatment efforts should probably address issues of fertility, sexuality, and gynecological health as well.

Among the individual characteristics examined, deviant behavior predicted nearly every type of drug use except for marijuana use among BCN students. Although many have suggested that drug use may be part of a problem behavior syndrome (e.g., Jessor et al., 1991), BCN boys were involved in fewer deviant behaviors compared with LA boys. It may be that some drug use, such as alcohol use, among BCN boys is not part of a problem behavior syndrome. Despite higher social intolerance of alcohol use as reported by the Mexican students, alcohol is advertised extensively in the popular media, and alcohol can be purchased in grocery stores, which suggests that *some* alcohol use among adolescents may be normative within the culture and not always part of a problem behavior syndrome. For U.S. students, however, deviant behavior and drug use may be part of a problem behavior syndrome or part of a deviant subculture that involves a certain peer group.

Social intolerance of cigarette use and peer drug use were the influential environmental predictors of drug use among LA

students. Although social intolerance of drugs was also included in the regression analysis, social intolerance of cigarettes was more influential in discouraging drug use. It may be that the sanctions believed to accompany perceived social intolerance of a "less" serious drug such as nicotine are enough to deter students from beginning and experimenting with a variety of drugs, and progressing to more serious drug use though this remains to be confirmed. Peer drug use was a strong predictor of most types of drug use among LA students, but it was only influential as a predictor of illicit drug use for the BCN group. As suggested by other studies (Gilbert & Cervantes, 1986), this may reflect the influence of the parental attitudes and behavior on adolescent alcohol and cigarette use.

Between-groups gender comparisons uncovered interesting details regarding drug use patterns in the two cultural groups. Mexican American and Mexican boys were compared with each other. Although environmental influences were most important in predicting drug use for boys, deviant behavior and perceived harmfulness of drugs were influential across both groups of boys. However, boys differed in their vulnerability to environmental influences. Social intolerance of cigarette use and peer drug use were influential environmental predictors of drug use among LA boys. Peer drug use was a moderately strong predictor of every kind of drug use among LA boys but only for the "harder" drugs of marijuana and any illicit drug use among BCN boys.

Mexican American and Mexican girls were also compared with each other, and they differed in their vulnerability to both individual characteristics and environmental influences. Perceived harmfulness predicted drug use among LA girls but not among BCN girls. The sole individual characteristic that predicted drug use among BCN girls was deviant behavior, and this variable predicted cigarette use and illicit drug use. The girls were also more influenced by environmental influences. Social intolerance of cigarettes and drugs pre-

dicted marijuana and inhalant use among LA girls; social intolerance of cigarettes predicted alcohol use among BCN girls. The influence of social intolerance in decreasing drug use among girls is consistent with a girl's value of dyadic relationships and relationships in general (Gilligan, 1982). Drug use might threaten the relationship, and this threat may be what decreases drug use. Availability was important in cigarette use among BCN girls. Peer drug use predicted every type of drug use among LA girls but only predicted illicit drug use among BCN girls.

As mentioned earlier, individual characteristics were strongest in their influence for boys' drug use, and environmental influences and demographic variables were most influential for predicting girls' drug use. These data imply that prevention efforts might need to be gender as well as culturally sensitive. For example, it may be necessary to intervene at the level of cultural and societal messages to influence girls' drug use rather than rely solely on drug education or counseling to reach them.

Limitations and Study Implications

Although this study provides an interesting cross-cultural comparison of drug use behaviors, it is not without some shortcomings. We matched students on some individual characteristics (mostly Mexican American early-adolescent student sample compared with a Mexican national early-adolescent student sample) and sociopolitical context (border areas). However, the student samples did differ somewhat in some demographics; because the border areas are in different countries, they are fundamentally different from each other despite some similarities. The questions were not exactly alike across questionnaires, so these results must be confirmed with identical questionnaires administered to matched participants. For example, the items used to measure social intolerance of drug use were similarly worded, but BCN students were asked about their *peers'* reactions to different types of

drug use, whereas LA students were asked about their *community's* reactions to different types of drug use. A "community" may encompass more than just "peers," thus the questions are not identical and may be interpreted differently by respondents. Comparison of the two groups was also limited by the need to transform some variables into dichotomous variables. Although some studies indicate the validity of self-report, there is always the possibility that students are providing socially desirable responses. Finally, conclusions are limited by the cross-sectional nature of the study.

Despite these limitations, the results do suggest some directions for further research and intervention. It would be interesting to see how alcohol patterns change as a function of an adolescent's immigration to the United States. Some studies have suggested that the high-quantity drinking pattern of Mexican men might become modified and intensified as a function of encountering and incorporating the high-frequency pattern that characterizes U.S. drinking norms and customs (Caetano & Medina-Mora, 1988). Can this type of modification occur with adolescent immigrant drinking patterns? Might their alcohol use be reduced through contact with U.S. students, or does it provide a dangerous baseline from which drug use progresses more quickly? Finally, it would be important to replicate the study with other Mexican American and Mexican student samples.

The development and implementation of early prevention programs to delay or reduce alcohol use and to educate students regarding the risks associated with alcohol and drug use might be a particularly important intervention for Mexican students, particularly for those who are in border regions. Alternatively, Mexican American students in the United States might benefit from the development and implementation of very early prevention programming to reduce illicit drug use as well as alcohol use. Education regarding the risks associated with alcohol and drug use might be particularly important for boys. In addition, U.S. and Mexican

students might benefit from systemic interventions to reduce social tolerance of drug use and especially social tolerance of cigarette and alcohol use. Such interventions might include early parent training programs in managing substance use and modeling healthy coping in the home environment (a direct intervention). For U.S. students, discouraging peer drug use would be an important systemic intervention for reducing the probability of drug use. Among Mexican students, decreasing the number of liquor stores and cigarette vendors per neighborhood would be a more important intervention.

References

- Berenson, A. B., San Miguel, V. V., & Wilkinson, G. S. (1992). Violence and its relationship to substance use in adolescent pregnancy. *Journal of Adolescent Health, 13*, 470-474.
- Caetano, R. (1987). Acculturation and attitudes toward appropriate drinking among U. S. Hispanics. *Alcohol and Alcoholism, 22*, 427-433.
- Caetano, R., & Medina-Mora, M. E. (1988). Acculturation and drinking among people of Mexican descent in Mexico and the U.S. *Journal of Studies on Alcohol, 49*, 462-471.
- Canino, G., Burnam, A., & Caetano, R. (1992). The prevalence of alcohol abuse and/or dependence in two Hispanic communities. In J. Helzer & G. Canino (Eds.), *Alcoholism in North America, Europe, and Asia* (pp. 131-154). New York: Oxford University Press.
- Castro, M. E. (1978). Consumo de Drogas en Mexico: Patrones de uso en la poblacion escolar [Drug use in Mexico: Patterns of use in the school population]. *Revista de Salud Publica de Mexico, 20*, 585-590.
- Castro, M. E. (1987). *Manual para la utilizacion del cuestionario sobre el uso de drogas y problemas asociados, dirigido a muestras de estudiantes de enseñanza media y media superior* (Reporte Interno) [Manual for the use of the drug use and drug use-related problems questionnaire for middle school students (Internal report)]. Mexico City, Mexico: Instituto Mexicano de Psiquiatria.
- Castro, M. E., Rojas, E., García, & G. De La Serna,

- J. (1986). Epidemiología del Uso de Drogas en la Población Estudiantil: Tendencias en los Últimos 10 Años [Drug use epidemiology in the school population: Trends of the last 10 years]. *Salud Mental, 9*, 80-86.
- Coombs, R. H., Paulson, M. J., & Richardson, M. A. (1991). Peer vs. parental influence in substance use among Hispanic and Anglo children and adolescents. *Journal of Youth and Adolescence, 20*, 73-88.
- Díaz-Guerrero, R. (1994). *Psicología del Mexicano* [Psychology of the Mexican]. Mexico City, Mexico: Trillas.
- Dusenbury, L., Epstein, J. A., Botvin, G. J., & Diaz, T. (1994). Social influence predictors of alcohol use among New York Latino youth. *Addictive Behaviors, 19*, 363-372.
- Félix-Ortiz, M., Muñoz, R., & Newcomb, M. D. (1994). The role of emotional distress in drug use among Latino adolescents. *Journal of Child and Adolescent Substance Abuse, 3*, 1-22.
- Gilbert, M. J., & Cervantes, R. C. (1986). Patterns and practices of alcohol use among Mexican Americans: A comprehensive review. *Hispanic Journal of Behavioral Sciences, 8*, 1-60.
- Gilligan, C. (1982). *In a different voice: Psychological theory and women's development*. Cambridge, MA: Harvard University Press.
- Institute on Social Research. (1987). *Monitoring the future: A continuing study of the lifestyles and values of youth*. Ann Arbor: University of Michigan, Institute of Social Research.
- Jessor, R., Donovan, J. E., & Costa, F. M. (1991). *Beyond adolescence: Problem behavior and young adult development*. New York: Cambridge University Press.
- Johnston, L. D., O'Malley, P. M., & Bachman, J. G. (1992). *Smoking, drinking, and illicit drug use among American secondary school students, college students, and young adults*. Rockville, MD: National Institute on Drug Abuse.
- Johnston, L. D., O'Malley, P. M., & Bachman, J. G. (1995). *National survey results on drug use from the Monitoring the Future Study, 1975-1994: Vol. 1. Secondary school students*. Rockville, MD: National Institute on Drug Abuse.
- Mariño, M. C., Romero, M., & Medina-Mora, M. E. (1998). Juventud y adicciones [Youth and addictions]. In J. A. Pérez Islas & E. P. Maldonado Oropeza (Eds.), *La investigación sobre juventud en México 1986-1996* [The investigation of youth in Mexico 1986-1996]. Mexico City, México: Causa Joven.
- Medina-Mora, M. E., Bérenson, Sh., Villatoro, J., López, E., Juárez, F., & Carreño, S. (1995). Los factores que se relacionan con el inicio, el uso continuado y el abuso de sustancias psicoactivas en adolescentes mexicanos [The factors related to the initiation, use, and abuse of psychoactive substances among Mexican adolescents]. *Gaceta Médica de México, 131*, 383-393.
- Medina-Mora, M. E., Gomez-Mont, F., & Campillo-Serrano, C. (1981). Validity and reliability of a high school drug use questionnaire among Mexican students. *Bulletin on Narcotics, 33*(4), 67.
- Medina-Mora, M. E., Rascon, M. L., Otero, B. R., & Gutierrez, E. (1988). Patrones de consumo de alcohol en México [Alcohol use patterns in Mexico]. In J. Gilbert (Ed.), *Alcohol consumption among Mexicans and Mexican Americans: A binational perspective* (pp. 27-52). Los Angeles: University of California, Los Angeles.
- Medina-Mora, M. E., Rojas, E., Juárez, F., Bérenson, Sh., Carreño, S., Galván, J., Villatoro, J., López, E., Olmedo, R., Ortiz, E., & Nequis, G. (1993). Consumo de sustancias con efectos psicotropicos en la población estudiantil de enseñanza media y media superior de la República Mexicana [Use of psychotropic substances in the middle school population]. *Salud Mental, 16*, 2-8.
- Newcomb, M. D., & Bentler, P. M. (1988). *Consequences of adolescent drug use*. Newbury Park, CA: Sage.
- Newcomb, M. D., Fahy, B., & Skager, R. (1990). Reasons to avoid drug use among teenagers: Associations with actual drug use and implications for prevention among different demographic groups. *Journal of Alcohol and Drug Education, 36*, 53-81.
- Roberts, E. (1980). Reliability of the CES-D Scale in different ethnic contexts. *Psychological Research, 2*, 125.
- Simon, T. R., Stacy, A. W., Sussman, S., & Dent, C. W. (1994). Sensation seeking and drug use among high risk Latino and Anglo adolescents. *Personal and Individual Differences, 17*, 665-672.
- Stein, J. A., Newcomb, M. D., & Bentler, P. M. (1996). Initiation and maintenance of tobacco smoking: Changing personality correlates in adolescence and young adulthood.

- Journal of Applied Social Psychology*, 26, 160-187.
- Suarez-Toacedo, C. (1978). *Farmacodependencia a Heroína. Estudio en universo cerrado. Penitencia de Baja California (Reporte Interno)* [Heroin dependence: Study in a closed universe. Baja California, Mexico (Internal report)]. Baja California, Mexico: Author.
- Terroba, G., & Medina-Mora, M. E. (1979). Prevalencia del uso de fármacos en la ciudad de Mexicali, BC, a través de encuestas de hogares [Prevalence of drug use in Mexicali as per household surveys]. *Cuadernos Científicos CEMESAM*, 11, 123-143.
- Vega, W. A., Kolody, B., Aguilar-Gaxiola, S., Alderete, E., Catalano, R., & Caraveo-Anduaga, J. (1998). Lifetime prevalence of DSM-III-R psychiatric disorders among urban and rural Mexican Americans in California. *Archives of General Psychiatry*, 55, 771-777.
- Velez, C. N., & Ungemack, J. A. (1995). Psychosocial correlates of drug use among Puerto Rican youth: Generational status differences. *Social Science Medicine*, 40, 91-103.
- Villatoro Velázquez, J. A., Medina-Mora Icaza, M. E., Fleiz Bautista, C., Juárez García, F., Bérenzon Gorn, Sh., López Lugo, E. K., Rojas Guiot, E., & Carreño García, S. (1996). Factores que predicen el consumo de drogas en los estudiantes de enseñanza media y superior de México [Risk factors for drug use among Mexican middle school students]. *La Psicología Social en México*, 6, 569-574.
- Warheit, G. J., Biafora, F. A., Zimmerman, R. S., Gil, A. G., Vega, W. A., & Apospori, E. (1995). Self-rejection/derogation, peer factors, and alcohol, drug, and cigarette use among a sample of Hispanic, African-American, and White non-Hispanic adolescents. *International Journal of the Addictions*, 30, 97-116.
- Wellish, D., & Hayes, J. R. (1974). A cross cultural study of the prevalence and correlates of student drug use in the United States and Mexico. *Bulletin of Narcotics*, 26, 31-42.
- Zapata, J. T., & Katims, D. S. (1994). Antecedents of substance use among Mexican American school-age children. *Journal of Drug Education*, 24, 233-251.