

# A Cross-National Comparison of Youth Risk Behaviors in Latino Secondary School Students Living in El Salvador and the USA

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**Objectives.** *As Latin Americans' exposure to the USA increases through migration patterns and US political and economic ties to their countries of origin, they become susceptible to adopting not only the cultural expressions of the USA such as fashion, but also the health-related behaviors of the US population. In assessing potential health risks for Salvadoran youth that may result from the connection between Latin Americans and the USA, this study compared the prevalence of health risk behaviors from four behavior domains (aggression and victimization, depression and suicidal ideation, substance use, and sexual behavior) between Salvadoran and US Latino secondary school students aged 14–17 years.*

**Design.** *A secondary analysis was performed on two 1999 cross-sectional survey data. In the USA, results were based on 1,063 Latino high school students who answered the nationally representative Youth Risk Behavior Survey (YRBS) conducted by the Centers for Disease Control and Prevention. In El Salvador, results were based on 793 public secondary school students who answered a local YRBS survey conducted in coordination with the Ministry of Education of El Salvador.*

**Results.** *The prevalence rates for aggression/victimization and for depression and suicidal ideation behaviors were similar between Salvadoran and US Latino adolescents. Substance use prevalence, however, was 10–40% higher for US Latino adolescents. While the prevalence of sexual intercourse was higher among US Latino youth (between 13 and*

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27% higher, depending on age), the prevalence of condom use was lower among sexually active Salvadoran youth (between 11 and 42% lower, depending on age).

**Conclusions.** *In the context of the transnationalization of the Salvadoran population, with potential for increased influence of the USA in Salvadoran culture, these differences in risk behavior are important for targeting effective interventions for Latino adolescents in El Salvador and in the USA.*

**Keywords:** *Adolescents; Risk Behavior; El Salvador; Latin America; Cross-National; Suicide; Aggression; Drugs; Sexual Behaviors*

**Objetivos.** *A medida que los Latino Americanos aumentan su contacto con los Estados Unidos a través de migración y de los lazos económicos y políticos entre los países, ellos se vuelven más susceptibles de adoptar no sólo las expresiones culturales de los Estados Unidos como la moda, sino también las conductas que afectan la salud. Con el objetivo de mejorar nuestro entendimiento de las conductas de riesgo de adolescentes en El Salvador que pueden ser el producto de la conexión entre latinoamericanos y la cultura de los Estados Unidos, este estudio comparó la prevalencia de conductas de riesgo de estudiantes de secundaria latinos entre 14 y 17 años de edad en El Salvador y en los Estados Unidos en cuatro dominios conductuales: agresión y victimización, depresión e ideas suicidas, uso de drogas y alcohol, y conducta sexual.*

**Diseño.** *Un análisis de datos secundario se realizó de dos encuestas realizadas en 1999. En los Estados Unidos, los resultados se basaron en 1,063 estudiantes secundarios latinos que contestaron la Encuesta de Conductas de Riesgo de Jóvenes (Youth Risk Behavior Survey, YRBS) realizada por el Centro de Prevención y Control de Enfermedades (Centers for Disease Control and Prevention). En El Salvador, los resultados se basaron en 793 estudiantes de colegios públicos secundarios que contestaron una versión local del YRBS; esta encuesta fue realizada en coordinación con el Ministerio de Educación de El Salvador.*

**Resultados.** *La tasa de prevalencia de agresión/victimización y de depresión e ideas suicidas fue similar entre adolescentes latinos de Estados Unidos y de El Salvador. La prevalencia de uso drogas y alcohol fue entre 10 y 40% más alta entre adolescentes latinos de Estados Unidos que los de El Salvador. Aunque la prevalencia de relaciones sexuales fue más alta entre los jóvenes latinos de Estados Unidos (entre 13 y 27%, dependiendo de la edad), la prevalencia de uso de condones entre los jóvenes Salvadoreños sexualmente activos fue más baja (entre 11 y 42% más baja, dependiendo de la edad).*

**Conclusión.** *En el contexto de internacionalización de la juventud de El Salvador, con el posible aumento de la influencia de los Estados Unidos en al cultura Salvadoreña, las*

*diferencias en conductas de riesgo son importantes para desarrollar intervenciones efectivas para adolescentes latinos en El Salvador y en Estados Unidos.*

**Palabras clave:** *Adolescentes; Conducta de Riesgo; El Salvador; Latinoamérica; Transnacional; Suicidio; Drogas; Conductas Sexuales*

## Introduction

According to a recent report from the United Nations Development Program, the El Salvador of today may be best understood by looking beyond the national territory to the large Salvadoran population living abroad (Programa de las Naciones Unidas para el Desarrollo en El Salvador [PNUD] 2005). In the past 35 years, more than 20% of Salvadorans have emigrated to other countries, with estimates as high as 2.5–3.3 million emigrants—95% of whom reside in the USA and Canada (PNUD 2005). The strong connection between Salvadorans and the USA, in particular, has important historical roots, including the involvement of the US government in El Salvador's civil war that took place between 1980 and 1992. In addition to strong economic and political ties that were established during this period, increased migration during and after the war has deepened the relationship between El Salvador and the USA at a grassroots level. Increasing waves of Salvadorans from the countryside have migrated to the USA since the earthquakes of 2001; ongoing deportations of Salvadorans from the USA to El Salvador have risen from 4,216 in 1999 to 36,689 in 2004 (Andrade-Eekhoff 2006); international telephone traffic is as high as 2,000 million minutes per year; remittances to over 22% of Salvadoran homes represent more than 16% of the GDP; and other exchanges such as commerce, tourism, community development and political support reinforce the links between the two countries (PNUD 2005).

The close ties between El Salvador and the USA have important cultural implications for the lifestyles and behaviors in which Salvadorans living in El Salvador and the USA engage. In El Salvador, the impact of this cross-national connection can be observed in the ever increasing presence of fast food restaurants like Burger King and Dominos Pizza in lower to middle-class neighborhoods in San Salvador, fashions driven by US-owned clothing stores such as Payless Shoe Source, and homes and lawns in rural areas that resemble those of the USA. As Salvadorans emigrate to the USA, they become even more susceptible to adopting not only the cultural expressions of the host country such as fashion and food, but the health-related behaviors of the host US population. The body of research on acculturation and health behavior provides some evidence for the adoption of various health-related behaviors of the host country as Latin Americans become more rooted in the USA (Bethel & Schenker 2005; Lara *et al.* 2005). While acculturation has been studied primarily in terms of an immigrant group acculturating to the host country population, the strong relationships and exchange between El Salvador and the USA present a unique opportunity to assess the health behavior impact of

Westernization—a process whereby traditional, long-established societies come under the influence of Western culture ('Westernization' 2006)—on Salvadorans and Latinos in general living not only in the USA, but in also their native country.

In assessing the potential impact of Westernization on health behaviors as well as the potential health risks and health benefits posed to Salvadorans emigrating to the USA, a first step is to understand the similarities and differences in current health behavior prevalence of Latinos from both countries. Adolescence is an ideal age for assessing the prevalence of health-related behavior based on the importance of this stage of life for establishing health promoting and compromising behaviors that often track into adulthood (Kelder *et al.* 1994; Baranowski *et al.* 1997). Cross-national comparison of the prevalence of health risk behaviors in Latino youth living in El Salvador and the USA may provide insights into the health risks and benefits stemming from Westernization that await Salvadoran youth while providing a measure of the relative magnitude of risk behavior prevalence in each country. Cross-national comparisons have been conducted on a range of adolescent health behaviors, including substance use (Warner *et al.* 2001; Beyers *et al.* 2004), HIV risk behaviors (Westhoff *et al.* 1996), gender differences in depression (Wade *et al.* 2002), violence-related behaviors (Smith-Khuri *et al.* 2004) and physical activity (Prochaska *et al.* 2002).

This study compares the prevalence of a range of youth risk behaviors in Latino adolescents living in El Salvador and the USA with the primary aims of assessing potential health risks for Salvadorans entering the USA, providing a baseline measure of health risk behavior prevalence in El Salvador with which to assess the impact of Westernization, and determining the relative magnitude of health risk behaviors in each country in order to target intervention efforts. We examine risk behavior prevalence rates from four behavior domains—aggression/victimization, depression and suicidal ideation, substance use, and sexual behavior—in Salvadoran and US Latino secondary school students between the ages of 14 and 17 years using survey data from the central region of El Salvador and nationally representative survey data of Latino adolescents from the USA.

## Methods

### *Data Source and Sample*

This study is based on a secondary analysis of survey data from two independent studies conducted in 1999: the US Youth Risk Behavior Survey (YRBS) from the Centers for Disease Control and Prevention (CDC) (CDC 1999; Kann *et al.* 2000) and a local survey conducted by the primary author (A.S.) in El Salvador. Students between the ages of 14 and 17 years were selected from the two datasets for this study. The YRBS is a comprehensive adolescent health survey that has been administered biennially in the USA since 1991 with a nationally representative sample of public and private high school students (Kolbe *et al.* 1993). This study included a weighted

sample of 1,063 high school students between the ages of 14 and 17 who participated in the 1999 YRBS and who self-identified as Hispanic or Latino. The specific sampling design and methods for the YRBS are described in greater detail elsewhere (Kann *et al.* 2000). The El Salvador survey data are from a study conducted with 982 public secondary school students from 16 randomly selected schools located in a central department (state) of El Salvador. Based on the age criteria, an unweighted sub-sample of 793 Salvadoran students was selected for this study. The El Salvador survey was based on a multistage sampling design stratified by urban and rural geographic classification in which school districts, schools and classrooms were randomly selected. The Institutional Review Board at the University of Texas–Houston Health Science Center approved the research methods for the study in El Salvador. Table 1 details the gender and age distribution of both samples.

### Measures

Data from both sources are based on items from the 1999 YRBS from the CDC. This self-administered questionnaire consists of closed-ended items with dichotomous and ordinal level response choices to assess health risk behaviors. For the El Salvador study, all items were translated from English to Spanish and back-translated and centered with the assistance of two Salvadoran university students and a native English speaker. The risk behavior study items were reviewed for content and appropriateness within the Salvadoran context by national level Ministry of Education officials. To evaluate students' comprehension of the items, the questionnaire was pilot-tested with a separate sample of 35 urban students attending a school in the study area.

Nine items assessed aggressive behavior and victimization, including physical fighting, having been threatened or injured with a weapon, having felt too unsafe to go to school, and having been hit or physically hurt by partner ('pareja', i.e. boyfriend or girlfriend) as experienced in 12 months prior to the survey; weapon carrying in the 30 days prior to the survey; and having ever been forced to have sexual intercourse against his/her will. Three items measured depressive symptoms and suicidal ideation

**Table 1** Demographic characteristics of the sample, Crossnational study of youth risk behaviors in adolescents living in El Salvador and the United States in 1999

	El Salvador (N = 793)		United States Latino (N = 1,063)*	
	Female n (%)	Male n (%)	Female n (%)	Male n (%)
Age in years				
14	107 (50.2)	106 (49.8)	63 (49.6)	64 (50.4)
15	144 (51.1)	138 (48.9)	144 (50.0)	144 (50.0)
16	93 (50.3)	92 (49.7)	183 (53.0)	162 (47.0)
17	45 (39.8)	68 (60.2)	143 (47.2)	160 (52.8)

\*Weighted sample.

as experienced in the 12 months prior to the survey: feeling so sad or hopeless for two or more weeks in a row that had to stop doing some usual activities, seriously considering attempting suicide and having previously attempted suicide. Six items measured substance use: episodic heavy alcohol drinking (drinking  $\geq 5$  alcoholic drinks in a row within a couple of hours on  $\geq 1$  days in past 30 days), current and lifetime cigarette use (current = smoked cigarettes on  $\geq 1$  day in past 30 days; lifetime = ever smoked cigarettes), and lifetime use of marijuana, inhalants and cocaine. Three items assessed sexual and reproductive behavior as measured by sexual intercourse experience (ever had sexual intercourse), age at first intercourse and use of condoms at last intercourse. All risk behavior variables were dichotomized (never/present at least once) for the purpose of this study.

### *Analysis*

We computed the risk behavior point prevalence estimates and confidence intervals by country, age and gender using the statistical software package Stata (version 9). For the YRBS data, we analyzed the weighted data with the *svy* function, which takes into account the complex sampling design. The El Salvador data were not weighted. These data were sampled using a stratified random sampling design by urban and rural schools with no oversampling of any particular group. Therefore, the findings from the El Salvador data could be generalized to urban and rural schools of the department from which the sample was taken. In determining within-sample differences in the prevalence of youth risk behavior by the different age groups and gender, we used chi-square test, with differences considered statistically significant if  $p < 0.05$ . Odds ratios (OR) and 95% confidence intervals (CI) were computed to assess the strength of association with an exploratory analysis of age at first intercourse and forced sex. Because these data are based on separate studies with different sampling distributions, we did not conduct significance testing to determine statistically significant differences of risk behavior prevalence between the El Salvador and US samples.

## **Results**

### *Comparisons within Countries*

In assessing the prevalence trends within the study samples, we found gender and age differences to cluster by risk behavior domain, with some domains revealing little age difference in risk behavior but strong gender and age differences. The prevalence of aggression/victimization-related behaviors differed more by gender than by age for youth from both countries (Table 2). Male students from both samples generally reported higher aggression-related behaviors than female students ( $p < 0.01$ ). Compared to males, female students reported higher prevalence of ever having been forced to have sexual intercourse and, for US students, higher prevalence of

**Table 2** Prevalence of aggression/victimization-related behaviors and depression/suicidal ideation among 14–17 year-old Latino youth living in El Salvador (ES) and the United States (US), by age and gender, 1999

		Age in Years				Gender		Total Sample%
		14 % (CI)	15 % (CI)	16 % (CI)	17 % (CI)	Females % (CI)	Males % (CI)	(CI)
<b>Aggression/Victimization</b>								
Participated in a physical fight <sup>‡</sup>	ES	31.8 (±6.3)	30.9 (±5.4)	30.3 (±6.6)	31.3 (±8.6)	20.9 (±4.1)	40.7 (±4.8)***	31.0 (±3.2)
	US	40.3 (±10.5)	41.7 (±6.9)	39.0 (±7.3)	41.0 (±5.5)	30.0 (±5.0)	51.1 (±4.6)***	40.4 (±3.5)
Participated in a physical fight on school property <sup>‡</sup>	ES	19.0 (±5.3)	17.9 (±4.5)	17.5 (±5.5)	14.3 (±6.5)	13.1 (±3.4)	21.9 (±4.1)**	17.6 (±2.7)
	US	16.9 (±10.9)	16.0 (±4.2)	20.0 (±5.6)	16.5 (±5.2)	10.4 (±2.6)	24.8 (±4.1)***	17.6 (±2.3)
Carried a weapon <sup>†</sup>	ES	10.8 (±4.2)	12.8 (±3.9)	10.9 (±4.5)	10.7 (±5.7)	3.1 (±1.7)	19.7 (±3.9)***	11.5 (±2.2)
	US	17.3 (±5.8)	17.2 (±6.5)	21.0 (±6.0)	18.9 (±5.3)	7.9 (±2.9)	30.5 (±4.5)***	18.9 (±3.2)
Carried a weapon on school property <sup>†</sup>	ES	7.0 (±3.4)	5.7 (±2.7)	3.8 (±2.8)	0.9 (±1.7)	2.1 (±1.4)	7.7 (±2.6)***	4.9 (±1.5)
	US	6.8 (±5.1)	8.6 (±4.3)	7.6 (±3.1)	5.7 (±1.8)	2.6 (±1.4)	12.1 (±2.5)***	7.3 (±1.6)
Carried a handgun <sup>†</sup>	ES	2.4 (±2.1)	4.6 (±2.4)	3.8 (±2.8)	0.9 (±1.8)	0.3 (±0.5)	6.3 (±2.4)***	3.3 (±1.2)
	US	3.7 (±4.6)	4.8 (±2.9)	5.6 (±2.8)	5.0 (±2.8)	1.1 (±0.7)	9.0 (±2.9)***	5.0 (±1.5)
Threatened/injured with weapon at school <sup>‡</sup>	ES	5.6 (±3.1)	8.5 (±3.3)	6.0 (±3.4)	6.3 (±4.5)	4.1 (±2.0)	9.5 (±2.9)**	6.8 (±1.8)
	US	9.5 (±6.0)	13.1 (±4.8)	9.4 (±3.4)	6.7 (±2.6)	5.6 (±1.9)	13.8 (±3.4)***	9.6 (±2.1)
Felt too unsafe to go to school <sup>†</sup>	ES	8.5 (±3.8)	8.5 (±3.3)	13.0 (±4.9)	11.7 (±6.0)	8.0 (±2.7)	12.0 (±3.2)	10.0 (±2.1)
	US	14.2 (±6.8)	14.2 (±6.1)	13.2 (±4.6)	9.3 (±4.4)	10.6 (±4.9)	14.5 (±4.5)	12.4 (±3.8)
Hit or physically hurt by partner <sup>‡</sup>	ES	6.9 (±3.5)	7.9 (±3.2)	6.2 (±3.6)	8.0 (±5.0)	6.4 (±2.5)	8.1 (±2.7)	7.3 (±1.9)
	US	5.3 (±5.0)	6.2 (±3.6)	7.3 (±3.8)	14.0 (±7.6)	10.1 (±3.6)	7.3 (±2.5)*	8.7 (±2.7)

**Table 2** (Continued)

		Age in Years				Gender		Total Sample% (CI)
		14 % (CI)	15 % (CI)	16 % (CI)	17 % (CI)	Females % (CI)	Males % (CI)	
Ever forced to have sexual intercourse	ES	3.0 ( $\pm$ 2.4)	7.5 ( $\pm$ 3.2)	6.9 ( $\pm$ 3.8)	8.8 ( $\pm$ 5.5)	7.5 ( $\pm$ 2.7)	5.1 ( $\pm$ 2.2)	6.3 ( $\pm$ 1.7)
	US	12.2 ( $\pm$ 9.9)	8.2 ( $\pm$ 3.1)	8.2 ( $\pm$ 3.7)	12.0 ( $\pm$ 7.2)	13.9 ( $\pm$ 5.4)	6.0 ( $\pm$ 2.4)**	9.8 ( $\pm$ 3.0)
<b>Depression &amp; Suicide</b>								
Felt sad or hopeless every day for 2 or more weeks in a row <sup>†</sup>	ES	29.1 ( $\pm$ 6.1)	29.3 ( $\pm$ 5.3)	33.0 ( $\pm$ 6.8)	44.0 ( $\pm$ 9.2)*	37.2 ( $\pm$ 4.8)	27.4 ( $\pm$ 4.4)**	32.2 ( $\pm$ 3.3)
	US	28.5 ( $\pm$ 7.0)	39.4 ( $\pm$ 8.2)	34.3 ( $\pm$ 6.8)	41.8 ( $\pm$ 11.0)	46.4 ( $\pm$ 5.0)	27.8 ( $\pm$ 5.1)***	37.1 ( $\pm$ 4.3)
Seriously considered attempting suicide <sup>‡</sup>	ES	13.3 ( $\pm$ 4.6)	11.9 ( $\pm$ 3.8)	13.3 ( $\pm$ 4.9)	16.8 ( $\pm$ 6.9)	19.3 ( $\pm$ 4.0)	7.5 ( $\pm$ 2.6)***	13.3 ( $\pm$ 2.4)
	US	17.2 ( $\pm$ 8.0)	22.8 ( $\pm$ 7.1)	18.0 ( $\pm$ 6.0)	14.5 ( $\pm$ 3.9)	24.0 ( $\pm$ 3.8)	12.5 ( $\pm$ 4.3)***	18.2 ( $\pm$ 2.8)
Attempted suicide <sup>‡</sup>	ES	8.6 ( $\pm$ 3.8)	6.8 ( $\pm$ 2.9)	9.4 ( $\pm$ 4.3)	11.5 ( $\pm$ 5.9)	11.7 ( $\pm$ 3.2)	5.5 ( $\pm$ 2.2)**	8.6 ( $\pm$ 2.0)
	US	15.3 ( $\pm$ 6.9)	13.9 ( $\pm$ 4.6)	14.3 ( $\pm$ 7.1)	11.2 ( $\pm$ 4.7)	20.3 ( $\pm$ 5.0)	6.5 ( $\pm$ 3.0)***	13.4 ( $\pm$ 3.0)

<sup>†</sup>During 30 days preceding the survey; <sup>‡</sup>During 12 months preceding the survey.

\*Within sample (age or gender group)  $p < 0.05$ ; \*\*Within sample (age or gender group)  $p < 0.01$ ; \*\*\*Within sample (age or gender group)  $p < 0.001$ .

having been hit or physically hurt by partner ( $p=0.04$ ). Although some trends in risk behavior prevalence by age were observed for a specific country, overall, risk behaviors in the aggression/victimization domain did not have a consistent association with age; no statistically significant within-country differences were found. Specific trends included a decreasing prevalence with age of physical fighting and weapon carrying on school property and increasing prevalence with age of ever forced to have sexual intercourse among Salvadoran students; prevalence of having been hit or physically hurt by partner increased with age among US students.

Similar to the aggression/victimization domain, we found prevalence of depression and suicide-related behaviors tended to differ more by gender than by age for both samples. Females from both countries reported a significantly higher prevalence of depression and suicide-related behaviors ( $p < 0.01$ ). In the Salvadoran sample, gender differences in prevalence ranged from 6.2% (for suicide attempts) to 11.8% (for suicide thoughts); in the US sample, gender differences ranged from 11.5% (for suicide thoughts) to 18.6% (for feelings of sadness/hopelessness). The prevalence of feeling sad or hopeless every day for two or more weeks in a row increased with age for the Salvadoran sample ( $p=0.02$ ), with a similar but nonsignificant trend observed for the US sample. No significant age differences were found for reporting of serious suicide thoughts or attempts.

Substance use tended to vary by age and gender for both samples (Table 3). In the US sample, substance use increased by age for all related behavior with the exception of inhalant use, which peaked at age 15 and then decreased in ages 16 and 17. In the Salvadoran sample, trends in drug use by age were less apparent, and significant age differences in substance use prevalence were only found for binge drinking ( $p=0.03$ ), which peaked at age 16 and decreased at age 17. Important gender differences were observed with the substance use variables, with males from both samples reporting higher substance use than females. For the Salvadoran sample, differences in substance use by gender were all statistically significant ( $p < 0.05$ ), with the exception of episodic heavy drinking. Despite higher prevalence among males, marijuana use ( $p=0.01$ ) and episodic heavy drinking ( $p < 0.001$ ) were the only substance use variables that were significantly different by gender in the US sample.

Sexual behaviors differed by age and gender for both samples (Table 3). As expected, the number of students who reported having had sexual intercourse increased with age, while the number of students who reported their first sexual intercourse at or before 13 years of age tended to decrease with age for both samples. Males from both samples reported significantly higher prevalence of sexual intercourse ( $p < 0.001$ ) and of having had sexual intercourse at or before age 13 ( $p < 0.001$  for USA and  $p=0.037$  for El Salvador). Reported condom use tended to increase with age for sexually experienced Salvadoran youth, but the trend was not statistically significant. Conversely, a higher proportion of US Latino youth aged 14–16 years reported condom use at last intercourse compared to their 17-year-old counterparts ( $p=0.006$ ).

**Table 3** Prevalence of substance use and sexual behaviors among 14–17 year-old Latino youth living in El Salvador (ES) and the United States (US), by age and gender, 1999.

		Age in Years				Gender		Total Sample% (CI)
		14% (CI)	15% (CI)	16% (CI)	17% (CI)	Females% (CI)	Males% (CI)	
<b>Substance Use</b>								
Episodic heavy drinking <sup>y</sup>	ES	6.6 (±3.3)	8.5 (±3.3)	15.1 (±5.2)	10.8 (±5.8)*	8.3 (±2.7)	11.4 (±3.1)	9.9 (±2.1)
	US	20.1 (±6.9)	24.9 (±6.1)	32.4 (±6.7)	40.7 (±7.1)**	26.4 (±5.4)	35.9 (±5.7)***	31.2 (±4.9)
Lifetime cigarette use	ES	33.0 (±6.3)	33.7 (±5.6)	31.0 (±6.7)	40.5 (±9.1)	20.8 (±4.1)	46.8 (±4.9)***	34.1 (±3.3)
	US	58.4 (±14.0)	69.7 (±5.3)	74.1 (±6.3)	79.3 (±4.7)**	71.2 (±4.9)	74.2 (±5.3)	72.6 (±4.1)
Current cigarette use <sup>†</sup>	ES	10.0 (±4.0)	12.9 (±3.9)	14.7 (±5.1)	15.3 (±6.7)	8.1 (±2.7)	17.5 (±3.7)***	12.9 (±2.3)
	US	25.1 (±6.5)	25.6 (±5.6)	31.5 (±7.4)	40.3 (±7.7)*	30.6 (±5.2)	32.6 (±5.6)	31.6 (±4.5)
Lifetime marijuana use	ES	4.7 (±2.9)	4.6 (±2.5)	5.4 (±3.3)	3.6 (±3.5)	3.1 (±1.7)	6.3 (±2.4)*	4.7 (±1.5)
	US	34.1 (±11.9)	39.6 (±5.5)	56.4 (±8.3)	60.1 (±8.6)***	45.5 (±6.4)	55.2 (±8.0)*	50.2 (±6.3)
Lifetime cocaine use	ES	5.2 (±3.0)	2.9 (±2.0)	1.6 (±1.8)	4.5 (±3.8)	1.0 (±1.0)	5.8 (±2.3)***	3.4 (±1.3)
	US	11.1 (±4.7)	13.1 (±4.8)	15.1 (±4.5)	19.1 (±6.4)	13.7 (±4.2)	16.8 (±4.9)	15.2 (±4.1)
Lifetime inhalant use	ES	4.2 (±2.7)	5.4 (±2.7)	3.2 (±2.5)	1.8 (±2.5)	2.6 (±1.6)	5.5 (±2.2)*	4.1 (±1.4)
	US	15.4 (±6.6)	20.4 (±5.2)	15.0 (±4.1)	14.6 (±5.5)	16.1 (±4.0)	16.7 (±3.4)	16.4 (±2.8)
<b>Sexual Behaviors</b>								
Ever had sexual intercourse	ES	20.4 (±5.4)	22.6 (±4.9)	31.4 (±6.7)	41.8 (±9.2)***	8.0 (±2.7)	45.0 (±4.9)***	26.8 (±3.1)
	US	33.0 (±13.0)	44.2 (±6.9)	48.7 (±7.3)	69.2 (±5.9)***	41.5 (±5.7)	61.7 (±6.3)***	51.8 (±5.2)
First intercourse at or before age 13 <sup>‡</sup>	ES	76.7 (±12.6)	59.4 (±12.0)	24.6 (±11.2)	31.8 (±13.8)***	30.0 (±16.4)	50.6 (±7.3)*	47.6 (±6.8)
	US	70.2 (±11.0)	41.5 (±8.5)	39.4 (±8.2)	22.8 (±4.9)***	23.2 (±6.1)	44.2 (±7.1)***	35.7 (±4.6)

**Table 3** (Continued)

		Age in Years				Gender		Total Sample%
		14% (CI)	15% (CI)	16% (CI)	17% (CI)	Females% (CI)	Males% (CI)	(CI)
Condom use at last intercourse <sup>‡</sup>	ES	19.0 (±11.9)	29.5 (±11.4)	36.2 (±12.4)	37.8 (±14.2)	30.0 (±16.4)	31.3 (±6.9)	31.1 (±6.3)
	US	60.6 (±14.0)	69.4 (±10.7)	62.4 (±10.1)	48.5 (±9.3)**	45.7 (±9.3)	66.8 (±8.4)***	58.4 (±7.8)

<sup>‡</sup>5 or more alcoholic drinks in a row, within a couple of hours, on one or more days in past 30 days.

<sup>†</sup>Smoked cigarettes on ≥1 day of the 30 days preceding the survey.

<sup>‡</sup>Of those who reported having had sexual intercourse.

\*Within sample (age or gender group) p <0.05; \*\*Within sample (age or gender group) p <0.01; \*\*\*Within sample (age or gender group) p <0.001.

To further understand the young age of sexual intercourse with the study sample, we explored the association of sex at or before age 13 with having been forced to have sexual intercourse. US Latino females who reported sex at or before age 13 were significantly more likely to report having been forced to have sex than females who initiated sex at 14 years or older (OR = 6.52, 95% CI: 2.44, 17.43,  $p < 0.001$ ). No statistically significant differences were found for US males or for the Salvadoran female or male samples.

### *Comparisons between Countries*

In comparing prevalence of risk behavior between Latino students living in El Salvador and the USA, similarities and differences tended to cluster by risk behavior domain. Reported prevalence rates of aggression and victimization-related behaviors and feelings of sadness and suicidal ideation (Table 2) were comparable across samples, with US Latino prevalence rates generally between 2 and 9% higher than Salvadoran rates. Substance use and sexual behavior risk behavior domains, in contrast, revealed important differences between the US and Salvadoran samples (Table 3). Latino youth in the USA reported higher prevalence rates across all the substance use behaviors examined than the Salvadoran youth. For episodic heavy drinking, prevalence rates in the US sample were three times higher than the prevalence rates of Salvadoran youth, and for lifetime and current cigarette use, prevalence rates of US youth were over two times higher. Even stronger differences were found for drug use. The prevalence of marijuana use was nine times higher, the prevalence of cocaine use five times higher and the prevalence of inhalants four times higher among Latino students living in the USA compared to the Salvadoran sample.

Lastly, Latino youth living in the USA reported higher prevalence of ever having had sexual intercourse than Salvadoran youth across all ages, with a prevalence difference of reported sexual intercourse ranging from 12.6% among 14 year olds to 27.4% among 17 year olds (Table 3). Although prevalence of sexual intercourse was higher among both US Latino males and females, the difference was particularly striking for females, with 41.5% of US Latino females reporting to have had sexual intercourse compared to 8.0% of Salvadoran females. In contrast, prevalence of reported sexual intercourse at or before age 13 was generally higher for Salvadoran youth than US Latino youth. Salvadoran youth also reported lower condom use at last sexual intercourse across all ages as compared to their US Latino youth counterparts, with prevalence differences ranging from 10.7% for students aged 17–41.6% for students aged 14.

### **Discussion**

This study found that adolescent risk behavior prevalence is not similar across all behavioral domains between Latino secondary school students in El Salvador and the USA, suggesting that risk for engagement in some adverse health behaviors may be

higher depending on the country where one lives. Although comparable prevalence rates were found for aggression and victimization behaviors and for depression and suicidal ideation, substance use prevalence and sexual intercourse were markedly higher among US Latino adolescents compared to Salvadoran adolescents; lack of condom use and sexual intercourse at a young age, on the other hand, were higher for Salvadoran adolescents. As El Salvador experiences a transnationalization of its population, with the potential for increased influence of the USA through trade, political influence and inter-country migration, these differences in health risk behavior may hold specific relevance for forecasting future health-related behaviors among Salvadoran adolescents as well as for targeting prevention efforts to shape the health of adolescents from El Salvador and other Latin American countries. Findings from international studies on adolescent health and studies that compare Latino youth born in Latin America and in the USA provide further support for the differences identified in this study as well as insights into the patterns of health risk behavior shared by adolescents across countries.

### *Cross-National Differences*

We found the greatest differences between Salvadoran and US Latino adolescents in the prevalence rates of substance use and sexual behaviors. Similar to studies that have found foreign-born and less acculturated Latino youth living in the USA to engage in lower substance use (Landrine *et al.* 1994; Lovato *et al.* 1994; Ebin *et al.* 2001; Epstein *et al.* 2001; Warner *et al.* 2001; Gfroerer & Tan 2003), we found that adolescents living in El Salvador reported lower substance use across all substances examined than Latino adolescents living in the USA. The lower prevalence of substance use among Salvadoran adolescents may speak to different normative behavior for engagement in substance use among adolescents within El Salvador. As substance use and other risk behaviors have been identified as a vehicle for promoting cohesion, trust and closeness among adolescents in the USA (Lightfoot 1997), the lower prevalence of substance use reported by this sample of Salvadoran secondary school students may suggest the importance of other activities for promoting social bonding and closeness among youth. Chen *et al.* (2004), in their study of adolescents in five Central American countries, Panama and the Dominican Republic, found religious activity and sports team participation to be inversely associated with onset of adolescent drug experiences.

The higher prevalence of substance use in US Latino youth may also stem from higher exposure to substance use content in US media and the subsequent promotion of substance use in youth culture in the USA. Alcohol, for example, appears in more than 70% of prime-time television shows and 90% of movies in the USA (Roberts *et al.* 1999). One US government study of adolescent smokers found that 86% preferred the most heavily marketed brands (CDC 1995), suggesting an impact of exposure to marketing messages on substance use behavior. The growing evidence of an association between exposure to substance use in the media and substance use

behavior in US adolescents (Klein *et al.* 1993; Brown & Witherspoon 2002; Saffer 2002; Wakefield *et al.* 2003; Grube & Waiters 2005) may hold important implications for future youth substance use behavior in countries such as El Salvador, especially as the influence of the USA takes root in local media.

An important explanation that must also be considered in understanding differences in substance use found in this study is the composition of the two samples. As only 50% of youth in El Salvador are reported to be enrolled in secondary school (Pan American Health Organization 2003) as compared to 72% of US Latino youth enrolled in high school in the year 2000 (Llagas & Snyder 2003), we cannot rule out a difference in substance use based on a selection bias in which a higher proportion of substance using adolescents may have dropped out of school in El Salvador as compared to the USA. As truant adolescents have been found to be at higher risk for substance use (Hallfors *et al.* 2002), it is likely that this study underestimates the prevalence of substance use among Salvadoran adolescents.

When comparing sexual behaviors across age, we found that a higher percentage of US Latino youth than Salvadoran youth reported having had sexual intercourse. This large difference may be due in part to under-reporting of sexual experience among Salvadorans, who may be less likely to report their sexual experience based on strong cultural taboos against premarital sex, particularly among females. A selection bias should also be considered in which sexually active Salvadoran females who have become pregnant may have dropped out of school or study in schools specifically designated for pregnant or teen mothers. Lastly, the large disparity in sexual experience may reflect genuine differences regarding sexual behavior among Latino adolescents living in the USA and El Salvador. This explanation is supported by Kaplan *et al.* (2002) and Jimenez *et al.* (2002) who found that less acculturated Latino adolescents were less likely to engage in sexual activity.

While US Latino youth reported a higher prevalence of sexual intercourse, sexually experienced Salvadoran adolescents tended to report an overall higher prevalence of having had their first sexual intercourse at or before 13 years of age and a lower prevalence of condom use at last intercourse. These findings mirror the results of Westhoff *et al.*'s (1996) comparison study of US Latino and Dominican Republic adolescents, which also found Dominican adolescents to initiate sex earlier and to report a lower prevalence of condom use than US Latino adolescents. The early age of initiation and low prevalence of reported condom use as compared to US Latino adolescents suggest that Salvadoran adolescents may be at higher risk for sexually transmitted diseases and unintended pregnancy. Though social and cultural differences cannot be discarded with regard to the higher prevalence of sexual intercourse at or before age 13 and the lack of association found for forced sex and young age among the Salvadoran sample, the small sample size of the Salvadoran study and the large body of US literature on the association between history of forced sex and young age at first sex (Miller *et al.* 1995; Nagy *et al.* 1995; Fergusson & Lynskey 1996; Rickert & Wiemann 1998; Silverman *et al.* 2001; Upchurch &

Kusunoki 2004) suggest the need for further research to explore the correlates of early age of sexual intercourse among Salvadoran adolescents.

### *Cross-National Similarities*

Despite youth homicide rates from El Salvador that rank among the highest in the Americas (see Eberwine 2003), this study found that adolescents studying in public schools from the central region of El Salvador reported prevalence rates of aggression and victimization comparable to or lower than those of Latino youth studying in public schools in the USA. Similar to other findings on aggression among adolescents (Bailey *et al.* 1997; Vazonyi & Flannery 1997; Orpinas *et al.* 1999; Grunbaum *et al.* 2004), males from both samples reported higher prevalence of aggression-related behaviors than females. While most forms of aggression and victimization examined did not vary by age, we found that the prevalence of fighting on school property among the Salvadoran adolescents tended to decrease with age, which is similar to what Nansel *et al.* (2001) found in a study of prevalence of bullying in the USA. While this decrease of fighting with age may be a result of more aggressive students dropping out of school or being expelled, a more optimistic explanation is that, as students mature, they are learning to solve conflicts without fighting (Orpinas & Horne 2006). As we did not find a decline in fighting on school property among the US Latino youth by age, more research is needed to confirm the potential differences in school-based aggressive behavior, as well as examine protective/enabling factors within the family, school and broader social environment that may account for such differences.

While victimization prevalence was similar between samples, with a 1.4–2.8% difference in prevalence rates, we found that the prevalence of having been hit or physically hurt by a partner increased with age for the Latino sample in the USA. One explanation may be an increase in the population who are dating by this older age for US Latino youth as compared to Salvadoran youth, which would in turn increase the possible exposure to dating violence. In support of possible differences of victimization by a partner between Latino youth living in the USA and in Latin America, Sanderson *et al.* (2004) found that parental birthplace outside of the USA was significantly associated with a reduced likelihood of dating violence among Latino female adolescents.

Feelings of sadness/hopelessness and suicidal ideation were comparable between the Salvadoran and US Latino adolescents, with roughly a 5% prevalence difference for the three items from this domain. Similarities were found for both gender and age trends. While male and female children tend to report similar depression rates, a gender gap in depression among adolescents has been reported to begin at the age of 14 years (Wade *et al.* 2002). In this study of 14–17 year olds, we found that females in both samples were significantly more likely than males to report feelings of sadness/hopelessness, suicidal thoughts and suicide attempts. These findings are supported by studies of depression in adolescents in Canada, Great Britain and the USA (Wade

*et al.* 2002) and suicidal ideation and suicide attempts among US adolescents (Grunbaum *et al.* 2004).

Some researchers have cautioned against cross-national comparisons of youth risk behavior due to the use of different survey measures (Pirkis *et al.* 2003). A specific strength of this study was the use of the same risk behavior measures from the Center for Disease Control and Prevention's Youth Risk Behavior Survey, which allowed for direct comparison of risk behavior prevalence between the two groups.

This strength notwithstanding, some limitations should be considered in interpreting the study's findings. First, prevalence estimates are based on self-report measures, which may be subject to differential reporting biases. Under-reporting or over-reporting of specific behaviors may also vary by country. Second, while the department from which the Salvadoran sample was taken represents the second largest population concentration in the country (Dirección de Estadísticas y Censos—El Salvador 2004), caution should be used in generalizing the findings across all Salvadoran secondary school students as the Salvadoran sample is not nationally representative. Moreover, with conditions that prevent approximately half of adolescents in El Salvador from attending secondary school (Pan American Health Organization 2003), this study does not capture those adolescents who are most at risk for adverse health behaviors. Further research is needed to assess health risk behaviors among the non-school population to develop a more complete representation of health risk behaviors in El Salvador. Further information is also needed about Latinos living in the USA. For example, the US Youth Risk Behavior Survey data for the Latino youth did not provide information on acculturation or generation status of family. As level of acculturation may increase or decrease the similarities or differences in prevalence estimates between the two groups, one may expect cross-national comparison studies to differ depending on level of acculturation of the Latinos sampled within the USA.

## Conclusions

The growing relationship between El Salvador and the USA presents a unique opportunity to explore how place of residence may shape an adolescent's risk behavior, as well as how an economically dominant country such as the USA may shape adolescent health behaviors of the countries within its sphere of influence. Our findings of a higher prevalence of substance use and premarital sexual intercourse of Latino youth in the USA may hold important implications for the health of Salvadoran adolescents as Salvadorans continue to migrate to the USA and the process of Westernization continues to take root in El Salvador. At the same time, the growing relationship between El Salvador and the USA may result in positive health outcomes for Salvadoran youth, such as increased condom use and delayed onset of sexual intercourse in youth. Our findings of a higher prevalence of depressive symptoms and suicidal ideation reported by adolescent females and the higher prevalence of aggressive behaviors reported by adolescent males point to important

gender disparities in health behavior in both countries that merit further research. These findings contribute to a large body of research on gender differences in health (e.g. Courtenay 2000; Doyal 2001; Impett & Peplau 2003) and emphasize a continued need for a gender-based framework for understanding health and health risk behaviors in adolescents.

While this study was limited to a focus on adolescent health risk behavior, theoretical perspectives rooted in social bonding, social learning theories and resilience theory (Hawkins & Weis 1985; Kotliarenco *et al.* 1997; Oetting *et al.* 1998) highlight the importance of protective factors within an adolescent's primary socialization contexts for reducing adolescent risk behavior and contributing to adolescent well-being. We hope this study and future cross-national comparisons will provide a foundation for exploring the protective factors within the family, school and larger societal contexts that may account for differences in health risk behavior prevalence between adolescents from different countries, such as the lower substance use among Salvadoran adolescents and the higher condom use among Latinos living in the USA found in this study.

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