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Original article

## Health-Related Issues in Latina Youth: Racial/Ethnic, Gender, and Generational Status Differences



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### A B S T R A C T

**Purpose:** Few studies have examined the early development of a broad range of health issues of importance in adolescence in Latina (female) youth, despite their being potentially a vulnerable group. This study compared suicide and depressive symptoms, substance use, violence exposure, injury prevention, obesity, and health-related quality of life among Latina, African-American, and white females as well as Latino (male) youth in fifth grade, as well as differences related to immigrant generational status for Latinas.

**Methods:** Data were from the Healthy Passages study, including 3,349 African-American, Latina, and white females as well as Latino male fifth graders in three U.S. metropolitan areas. Self-report items and scales were used to compare status on health-related issues. Generational status was classified based on the parent report of birth location. Logistic and linear regression analyses were conducted, including adjustment for sociodemographic differences.

**Results:** Latinas showed higher vulnerability than white females for several health issues, whereas few remained after adjustments for sociodemographic differences (higher obesity, lower bike helmet use, and lower physical health-related quality of life). Latina's lower vulnerability compared with African-American females generally persisted after adjustments. Third generation Latinas, after adjustments, reported lower prevalence of alcohol use and fewer friends using alcohol, yet higher future intentions of alcohol use, than first and second generation Latinas. There were few differences between Latina and Latino youth.

**Conclusions:** Latina youth generally report low vulnerability across health issues in preadolescence. To the extent they appear at higher vulnerability than white females, this may be related to their disadvantaged sociodemographic status.

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### IMPLICATIONS AND CONTRIBUTION

Latinas showed higher vulnerability than white females and lower vulnerability than African-American females for several health issues. Racial/ethnic disparities may be related to other sociodemographic differences. The interplay between gender and race/ethnicity should be considered routinely in adolescent health research and intervention.

**Conflicts of Interest:** The authors have no conflicts of interest to disclose.

**Disclaimer:** The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the CDC.

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Health disparities in Latino/a(s) have become of increasing interest because this population has grown significantly in recent decades, emerging as the largest minority group in the United States [1]. Latino/a(s) are vulnerable to poor health outcomes for a variety of reasons, including lack of health care services [2,3],

environmental exposures [4], and potentially detrimental health-related behaviors [5]. Particular concern may be raised about Latina (female) youth, who may be affected by cultural expectations for traditional gender roles and family responsibilities that may make them vulnerable for experiencing health-related issues in adolescence, such as depressive symptoms, substance use, and obesity [2,6].

The emergence of health-related issues during adolescence may have lifelong implications because these can persist into adulthood [7,8]. Several health-related issues have been identified by the Centers for Disease Control and Prevention to be of importance in adolescence, which include among other suicidal and depressive behaviors, tobacco, alcohol, and other substance use, violence, injury, and obesity [9]. These are among the leading causes of morbidity and mortality among youth and adults and can reduce health-related quality of life (HRQOL) [10]. Notably, in the past two decades there has been an increase in the likelihood that Latino/a youth in general, and Latinas in particular, will experience health-related issues [11]. The 2013 Youth Risk Behavior Surveillance Survey (YRBSS) reported that Latino/a high school students were more likely to experience depressive symptoms, suicidal behaviors, and alcohol and other drug use than white and African-American students and higher obesity than white students [9]. This raises the question whether these health-related issues are present among Latino/a youth already earlier in development.

In addition to considering the presence of specific health issues in Latina youth, it will be informative to examine their HRQOL [10] because this captures a person's experienced physical, psychological, and social health [12] and functioning in critical life roles [13]. Evaluating HRQOL provides a broader perspective on Latina youth's health status than focusing solely on specific health issues [14]. Only a few studies have examined HRQOL in Latino/a youth, whereas none has provided results separately by gender. In general, Latino/a youth report lower HRQOL than white youth [14,15], and lower physical, but similar psychosocial HRQOL compared with African-American youth [14].

Identifying gender differences in a broad range of health-related issues can be valuable for reducing disparities in Latino/a youth. There are gender differences among Latino/a youth, for example, in tobacco smoking [16], inhalant use, and obesity [9], suggesting that different approaches may be useful for Latina and Latino youth to prevent these, and potentially other, health-related issues. Moreover, Latina youth can differ in their acculturation balance between the mainstream U.S. culture and the gender role their parents expect of them [2,6], depending when they or their parents migrated to the United States. Generational status has been found to have implications for health [17]. Those less acculturated in the United States are generally less likely to engage in tobacco, alcohol, marijuana, and other drug use but report higher depressive symptoms [18–20].

Past studies have reported mixed results regarding health-related issues in Latina adolescents compared with peer groups, which may be due to differences in age and geographic location of the samples, country of origin, as well as their generational status. Furthermore, high school dropout rates in Latino/a youth may contribute to differences reported in later adolescence because those who are more likely to experience health issues are less likely to be captured in school samples [21]. Because previous research has focused on older youth, mostly in high school, it would be useful to examine racial/ethnic and

gender disparities before entry into adolescence. Especially glaring is that many studies examine differences among racial/ethnic groups without regard to gender, making it difficult to discern specifically the risk for health issues in Latina youth. In addition, most research has focused on one type of health issue at a time, for example alcohol use [22], making it difficult to gather a broader picture of their health.

To address these limitations, the present study examines vulnerabilities of preadolescent Latina youth, aged 10–11 years, on a broad range of health issues of importance in adolescence by addressing the following specific questions: Are there disparities in suicidal ideation and depressive symptoms; tobacco, alcohol, and illicit substance use; violence exposure; injury prevention; obesity; and HRQOL (1) in Latina compared with African-American and white females; (2) between Latina and Latino youth; and (3) among Latinas related to their generational status? This research extends previous work that compared these three racial/ethnic groups across various health issues but without examining gender and generational status [15].

## Methods

Data were from Healthy Passages, a multisite cohort study of health and health behaviors in fifth-grade youth initiated in 2004 [15,23]. Institutional review boards at each site and the CDC approved the study.

### Participants

The sample frame included fifth graders at public schools in and around metropolitan areas of Birmingham, Houston, and Los Angeles. We took a random sample of schools with probabilities designed to provide a balanced mix of African-American, Latino/a, and white students [23]. Information was disseminated to 11,532 fifth-grade students in 118 sampled schools, for whom a parent (or caregiver) of 6,663 (58% of population) agreed to be contacted by the study team. Because not all eligible families could be enrolled in a limited time frame, 5,147 (77% of eligible) parent-youth pairs completed interviews. Exclusion criteria included the youth not attending a regular academic classroom or parent or youth not being able to complete interviews in English or Spanish. The 35% of enrolled youths who did not identify as Latina, African-American, or white female or Latino (male) were eliminated resulting in 3,349 in the analysis sample. The unweighted distribution among the females was 37% Latina, 38% African-American, and 25% white, and 50% of the Latino/a(s) were female. Overall age mean = 11.12 (standard deviation = .58). Additional demographic information is provided in Table 1 and further detailed elsewhere [15].

### Procedures

Two trained interviewers completed the full Healthy Passages protocol with the parent and youth either at home or at a community location. Computer-assisted personal interview and computer-administered self-interview (to increase validity of sensitive questions, such as drug use) were administered with parent and youth individually in private spaces [23]. Both were given a choice of completing the interview in English or Spanish, which 32% of parents and 7% of youth preferred.

**Table 1**  
Sociodemographic characteristics by racial/ethnic groups, Latino/a gender, and Latina generational status

	Total sample (N = 3,349)	Latinas (n = 910)	White females (n = 609)	African-American females (n = 927)	Latinos (n = 903)	Latinas		
	n (%)	%	%	%	%	3rd gen (n = 231) %	2nd gen (n = 493) %	1st gen (n = 172) %
Child's age (years)								
≤10	1,539 (45)	47	44	44	44	49	48	42
11	1,580 (48)	45	53	49	47	45	45	44
≥12	230 (7)	8	3	7	9	6	7	14
Household income as % FPL								
<100%	508 (17)	18	2	25	19	33	55	67
100%–199%	529 (19)	25	4	17	24	22	32	22
200%–299%	740 (26)	31	9	28	29	20	8	8
300%–399%	636 (20)	18	24	20	21	12	3	0
400%–499%	377 (10)	6	33	8	6	5	1	1
≥500%	247 (6)	3	28	2	2	10	1	2
Highest household education								
<9th grade	663 (25)	39	0	1	39	5	46	55
Some high school	439 (15)	19	5	12	18	17	20	17
High school diploma/GED	655 (21)	20	12	31	19	9	20	9
Some college/2-year degree	822 (22)	16	23	38	17	15	11	15
Bachelor degree	419 (11)	4	34	12	5	2	3	2
≥Bachelor degree	288 (7)	2	26	6	2	2	1	2
Parent marital status								
Single/other	1,126 (32)	25	20	60	25	33	25	17
Married/living together	2,197 (69)	75	80	40	75	67	75	83

% is calculated with sampling weights.

FPL = federal poverty level; Gen = generation status; GED = General Educational Development.

## Measures

Obesity was classified based on weight (measured to the nearest .1 kg using a Tanita electronic digital scale) and standing height (measured to the nearest millimeter using a portable stadiometer with the participant in bare feet or socks) according to the standard anthropometric protocols (Centers for Disease Control and Prevention, 1998). Body mass index (BMI) was calculated using the formula weight (kg)/height (meters) [23]. Sex-specific ratios of weight for height by age (months) were calculated according to CDC guidelines [24] to obtain the BMI percentile, with obese being defined as BMI ≥ 95th percentile.

Injury prevention behaviors in the form of bike helmet and car seatbelt use were assessed with self-report items from the YRBSS [9]: “When you ride a bicycle, how often do you wear a helmet?” and “When you ride in a car, how often do you wear a seatbelt?” each with five response choices. Responses to both items were dichotomized into always versus not always.

Violence exposure was assessed with two self-report-items from the YRBSS [9]: “How often over the past 12 months, have you seen someone else get hit, kicked, punched, or beaten up?” and “How often over the past 12 months, have you seen someone else threatened or injured with a gun?” each with four response choices. The witnessing violence item was dichotomized into lots of times versus not lots of times and the witnessing gun violence item into one time or more versus never.

Suicidal ideation and depressive symptoms were measured with the self-report form of the Major Depressive Disorder DISC Predictive Scale, which has been shown to have satisfactory reliability and validity [25]. Six items ask youth about depressive symptoms (e.g., “Has there been a time when nothing was fun for you and you just were not interested in anything,” yes or no). The number of yes responses (0–6) constituted a depressive score. Suicidal ideation was measured with the additional item,

“During the past 12 months has there been a time when you thought seriously about killing yourself?” (yes or no).

Substance use such as tobacco, alcohol, marijuana, inhalant, and other illicit drug use behaviors were measured with items commonly employed for this purpose [9,26]. Items addressing “other illicit drug use” asked if youth “had ever used any other drug, besides tobacco, alcohol, marijuana, or inhalants, to get high or feel good,” excluding medication. To assess lifetime use for each substance the youth was asked, “Have you ever tried or used [substance]?” (yes or no). Youth who responded yes were then asked about current use, “During the past 30 days, on how many days did you use [substance]?” with responses ranging from 0 days (1) to all 30 days (7). Because of low prevalence of each response choice, any response of 1 day or more (2–7) was collapsed to indicate yes to current use. Youth who responded no to the lifetime item were categorized as no for current use.

To assess youth's perceived norms about tobacco, alcohol, and marijuana use, they were asked, “How many of your closest friends do you think have ever used?” for each of these substances (none = 0, few = 1, many = 2). To assess youth's future intent to use tobacco, alcohol, or marijuana they were asked for each, “Do you think you will use [substance] in the next 12 months?” (no = 0, maybe = 1, yes = 2).

HRQOL was measured with the 23-item self-report Pediatric Quality of Life Inventory (PedsQL), version 4.0, a widely used measure of children's HRQOL [27] that has demonstrated high construct validity, for example, with healthy youth reporting significantly higher HRQOL than chronically ill peers [28]. The Pediatric Quality of Life Inventory has demonstrated to be reliable and valid when used among diverse youth, including Latino/a, in the general population (Limbers, Newman, and Varni, 2009; Varni, Burwinkle, and Seid, 2006). Youth are asked how much a certain behavior has been a problem in the past month, using a five-point scale (0 = “never a problem,” 4 = “always a problem”).

Ratings are then linearly transformed to a 0–100 scale with higher scores indicating better HRQOL. To reduce the number of statistical tests of correlated variables, analyses were conducted with the Total (23 items), Physical (8 items; e.g., “You hurt or ache.”), and Psychosocial (15 items; e.g., “You worry about what will happen to you.”) scale scores. Internal consistency reliability alpha coefficients were .87, .72, and .84, respectively, in the current sample.

Youth race/ethnicity was based on the parent’s response when asked whether the child belonged to any of the several Latino/a groups, followed by seven race categories. Using Census-Style classification, the youth was classified as Latino/a if so indicated regardless of race category. Others were classified as African-American, white, or other (including multiracial/ethnic youth), with the latter category excluded from the analysis.

Generational status of youth was measured based on parent’s response when asked his/her and both parents’ birth location. The first generation was classified when youth was born abroad, second generation when youth was born in the United States and one parent was born abroad, and third generation when youth and both parents were born in the United States [29].

Socioeconomic status was measured as the mean of standardized parent reported (a) highest level of education completed in the household and (b) total household income transformed as percentage of federal poverty level, which takes into account the number of people in the home.

Parental marital status was based on parents’ response when asked their current marital status from among several choices, which was dichotomized as married or living with a partner versus single or other.

### Statistical analyses

Analyses were conducted using IBM SPSS Statistics 23 Complex Sampling module to account for effects of study design, including weighted data to adjust for nonresponse, sampling of schools with unequal probability to improve the ability to estimate racial/ethnic disparities, clustering within schools, and stratification by site [15]. For dichotomous variables, logistic regression was used to calculate odds ratios with 95th percentile confidence intervals. For scale measured variables, linear regression was used to examine mean differences between groups. Significance was set at  $p < .05$ . Latinas were used as the reference group in race/ethnic and gender analyses [30]. Third generation was used as the reference when analyzing generational status for Latinas. In each case, analyses were conducted both without and with adjustments for sociodemographic differences, including youth age, SES composite, and parental marital status.

## Results

Full results are reported in tables, whereas because of space limitations the text focuses on group differences. Table 1 reports sample information by racial/ethnic groups and gender.

### Racial/ethnic disparities among females

As shown in Table 2 for dichotomized health issues, Latinas were less likely than African-American females to be classified as obese, report witnessing violence with and without a gun, and report ever having used tobacco, and more likely to report always

wearing a helmet, even after adjustments for sociodemographic variables. Latinas were more likely than African-American females to report always wearing seatbelt, but these differences were only significant after adjustments for sociodemographic variables. In comparison to African-American females, Latinas were less likely to report current alcohol use, but this was not significant after adjustments. In comparison to white females, Latinas were less likely to report always wearing a seatbelt and twice as likely to witness violence with a gun and suicidal ideations, but after adjustments, differences were no longer significant. Furthermore, in comparison to white females, Latinas were more likely to be classified as obese and less likely to report always wearing a helmet, even after adjustments.

As shown in Table 3 for health issues measured with scale variables, in comparison to African-American females, Latinas were less likely to perceive their friends to use alcohol, also after adjustments. In comparison to white females, Latinas were more likely to report depressive symptoms, but this was not significant after adjustments. Latinas were more likely than white females to perceive their friends using alcohol and tobacco, but neither was significant after adjustment. Latinas reported lower Total HRQOL than both African-American and white females, but this was not significant after adjustments. Similarly, Latinas reported lower Physical HRQOL than both African-American and white females, but after adjustments differences remained only against white females. Latinas reported lower Psychosocial HRQOL compared with white females, but this disappeared after adjustment.

### Gender disparities in Latino/a youth

As detailed in Table 2 for dichotomized health issues, Latina (female) youth were less likely than Latino (male) youth to report witnessing physical violence and gun threat and use and ever using alcohol, which remained after adjustments. Latinas were also less likely than Latino youth to report current alcohol use, but this disappeared after adjustment. As shown in Table 3 for scale measured health issues, Latina reported less often than Latino youth that they perceived their friends using tobacco, alcohol, and marijuana, which with the exception of marijuana, persisted after adjustments. Latina also reported lower intentions to use alcohol and marijuana in the future than Latino youth, but this did not remain after adjustments. Latina scored lower than Latino youth only for Physical HRQOL, also after adjustments.

### Generational status disparities in Latinas

As shown in Table 4 for dichotomized health issues, in comparison to first and second generation, third generation Latinas were more likely to report always wearing a helmet and seatbelt, but this was no longer significant after controlling for sociodemographic differences. Third generation Latinas were less likely than first and second generation to report ever using alcohol, even after adjustments. As seen in Table 5 for health issues measured with scale variables, in comparison to first and second generation, third generation Latinas were less likely to report perceiving their friends using alcohol, even after adjustments. Although third generation Latinas were less likely than first and second generation to report perceiving their friends using tobacco, these differences disappeared after adjustments. Third generation Latinas reported higher intention to use alcohol

**Table 2**  
Comparison of prevalences between Latinas and Latinos as well as among females of other racial/ethnic groups for dichotomized health-related issues

	Latina	Latino	Latina versus Latino		White females	Latina versus white females		African-American	Latina versus African-American	
	(n = 910)	(n = 903)			(n = 609)			females (n = 927)	females	
	%	%	Unadjusted	Adjusted <sup>a</sup>	%	Unadjusted	Adjusted <sup>a</sup>	%	Unadjusted	Adjusted <sup>a</sup>
			OR (CI)	OR (CI)		OR (CI)	OR (CI)		OR (CI)	OR (CI)
Obese classification	44.3	45.6	1.01 (.81–1.27)	.99 (.79–1.24)	21.2	<b>2.71</b> (1.99–3.70)	<b>1.52</b> (1.06–2.19)	57.8	.55 (.43–.70)	<b>.45</b> (.34–.60)
Bike helmet, “always” wears	21.4	18.2	1.21 (.92–1.60)	1.16 (.86–1.56)	56.4	<b>.26</b> (.20–.35)	<b>.69</b> (.47–1.00)	17.3	<b>1.53</b> (1.14–2.06)	<b>2.09</b> (1.48–2.96)
Seatbelt, “always” wears	66.7	66.2	.99 (.80–1.23)	.99 (.81–1.20)	79.5	<b>.57</b> (.41–.79)	.96 (.67–1.39)	64.8	1.21 (.92–1.60)	<b>1.55</b> (1.17–2.05)
Physical assault, witnessed “lots of times” past 12 months	5.5	8.9	<b>.55</b> (.38–.78)	<b>.54</b> (.38–.78)	1.8	2.17 (.92–5.13)	1.25 (.40–3.88)	14.3	<b>.34</b> (.22–.51)	<b>.25</b> (.14–.43)
Gun threat or injury, witnessed past 12 months	8.6	13.8	<b>.57</b> (.43–.77)	<b>.56</b> (.42–.75)	3.9	<b>1.84</b> (1.16–2.91)	.84 (.42–1.66)	17.4	<b>.45</b> (.33–.61)	<b>.37</b> (.26–.52)
Suicide ideation, past 12 months	5.8	6.5	.81 (.52–1.25)	.82 (.53–1.27)	2.5	<b>2.20</b> (1.07–4.51)	1.54 (.67–3.57)	6.8	.78 (.49–1.24)	.73 (.44–1.20)
Tobacco use, lifetime	5.6	5.8	.82 (.50–1.33)	.83 (.50–1.38)	3.8	1.07 (.52–2.22)	.73 (.27–2.01)	8.4	<b>.53</b> (.33–.85)	<b>.48</b> (.28–.80)
Tobacco use, past 30 days	0.5	0.9	.45 (.13–1.54)	.46 (.13–1.59)	0.3	1.20 (.22–6.62)	.74 (.04–12.55)	1.2	.39 (.13–1.20)	.39 (.10–1.48)
Alcohol use, lifetime	4.4	5.9	<b>.62</b> (.39–.98)	<b>.60</b> (.39–.94)	3.6	1.37 (.78–2.39)	1.91 (.89–4.10)	5.9	.73 (.46–1.16)	.69 (.37–1.28)
Alcohol use, past 30 days	1.6	2.5	<b>.50</b> (.25–.99)	.53 (.27–1.05)	1.1	1.22 (.39–3.81)	1.77 (.55–5.64)	2.5	<b>.51</b> (.26–1.00)	.37 (.13–1.04)
Marijuana use, lifetime	1.0	1.8	.75 (.33–1.70)	.77 (.33–1.77)	1.5	.83 (.33–2.12)	.93 (.22–3.88)	1.6	<b>.86</b> (.43–1.75)	.70 (.25–1.96)
Marijuana use, past 30 days	0.1	0.4	.37 (.04–3.78)	.38 (.03–4.43)	0.3	.51 (.04–5.86)	.25 (.01–5.17)	0.4	.29 (.03–2.50)	.10 (.01–1.22)
Inhalant use, lifetime	6.9	6.2	1.09 (.70–1.69)	1.07 (.70–1.65)	5.1	1.52 (.95–2.44)	1.71 (.88–3.35)	5.7	1.34 (.90–1.99)	1.44 (.91–2.27)
Inhalant use, past 30 days	3.2	3.0	1.02 (.59–1.78)	1.04 (.60–1.80)	2.1	1.48 (.79–2.76)	1.09 (.49–2.44)	2.4	1.42 (.79–2.57)	1.36 (.66–2.82)
Other illegal drug use, lifetime	0.5	1.4	.40 (.16–1.01)	.41 (.15–1.07)	0.5	1.90 (.42–8.60)	4.23 (.48–37.19)	1.3	.38 (.13–1.14)	.40 (.11–1.50)

Comparisons between groups are made using logistic regression models, where the referent category is third generation. Bold values denote  $p < .05$  for OR, tested with logistic regression. CI = 95% confidence interval; OR = odds ratio.

<sup>a</sup> Adjusted for child age, socioeconomic status, and parental marital status.

**Table 3**  
Comparison of means between Latinas and Latinos as well as among females of other racial/ethnic groups for scale measured health variables

	Latina	Latino	Latina versus Latino		White females	Latina versus white females		African-American	Latina versus African-American	
	(n = 910)	(n = 903)			(n = 609)			females (n = 927)	females	
	M (SD)	M (SD)	Unadjusted	Adjusted <sup>a</sup>	M (SD)	Unadjusted	Adjusted <sup>a</sup>	M (SD)	Unadjusted	Adjusted <sup>a</sup>
			$\beta$ (SE); $p$	$\beta$ (SE); $p$		$\beta$ (SE); $p$	$\beta$ (SE); $p$		$\beta$ (SE); $p$	$\beta$ (SE); $p$
Depression symptoms	1.92 (1.59)	1.99 (1.54)	.07 (.07); .352	.07 (.07); .344	1.64 (1.56)	-.27 (.10); <b>.009</b>	.01 (.12); .924	2.01 (1.61)	.05 (.09); .553	.15 (.09); .085
Tobacco use perceived norms	.10 (.33)	.15 (.38)	.05 (.02); <b>.001</b>	.05 (.02); <b>.002</b>	.06 (.25)	-.03 (.02); <b>.05</b>	-.01 (.02); .806	.14 (.37)	.04 (.02); .060	.03 (.02); .110
Alcohol use perceived norms	.17 (.42)	.21 (.46)	.05 (.02); <b>.03</b>	.05 (.02); <b>.04</b>	.12 (.34)	-.05 (.03); <b>.05</b>	-.01 (.04); .820	.22 (.46)	.05 (.02); <b>.03</b>	.06 (.03); <b>.03</b>
Marijuana use perceived norms	.06 (.27)	.08 (.30)	.03 (.02); <b>.05</b>	.03 (.02); .060	.04 (.23)	-.02 (.01); .180	.01 (.02); .515	.06 (.27)	-.01 (.01); .087	.01 (.01); .614
Tobacco use intent	.04 (.21)	.05 (.24)	.02 (.01); .074	.02 (.01); .102	.02 (.15)	-.01 (.01); .201	-.01 (.02); .705	.05 (.26)	.02 (.01); .264	.02 (.02); .317
Alcohol use intent	.06 (.27)	.09 (.35)	.03 (.02); <b>.046</b>	.03 (.02); .059	.05 (.25)	-.01 (.01); .640	-.01 (.02); .658	.08 (.33)	.02 (.02); .204	.02 (.02); .273
Marijuana use intent	.01 (.14)	.02 (.16)	.02 (.01); <b>.044</b>	.01 (.01); .059	.01 (.15)	.01 (.01); .486	.01 (.02); .563	.02 (.17)	.01 (.01); .223	.02 (.01); .064
Total HRQOL	75.73 (13.60)	76.21 (13.20)	.61 (.50); .225	.56 (.49); .260	82.90 (11.42)	6.62 (1.00); <b>.000</b>	1.95 (1.19); .104	76.98 (13.40)	1.46 (.70); <b>.039</b>	.55 (.73); .456
Physical HRQOL	81.43 (14.34)	82.59 (14.29)	1.15 (.54); <b>.038</b>	1.05 (.53); <b>.050</b>	88.22 (10.51)	6.40 (.81); <b>.000</b>	2.52 (1.03); <b>.016</b>	83.53 (14.25)	2.03 (.67); <b>.003</b>	.90 (.74); .225
Psychosocial HRQOL	72.70 (15.22)	72.81 (14.53)	.32 (.57); .570	.30 (.57); .600	80.06 (13.44)	6.73 (1.18); <b>.000</b>	1.65 (1.44); .254	73.48 (15.31)	1.16 (.83); .165	.36 (.85); .673

Comparisons between groups are made using linear regression models, where the referent category is Latina. Bold values denote  $p \leq .05$  for  $\beta$ . HRQOL = health-related quality of life; SE = standard error.

<sup>a</sup> Adjusted for child age, socioeconomic status, and parental marital status.

**Table 4**

Comparison of prevalences among Latina generational status groups for dichotomized health-related issues

	3rd gen.	1st gen.	1st gen. versus 3rd gen.		2nd gen.	2nd gen. versus 3rd gen.	
	(n = 231)	(n = 172)	Unadjusted	Adjusted <sup>a</sup>	(n = 493)	Unadjusted	Adjusted <sup>a</sup>
	%	%	OR (CI)	OR (CI)	%	OR (CI)	OR (CI)
Obese classification	46.4	42.1	1.12 (.68–1.87)	1.58 (.94–2.64)	44.5	1.04 (.68–1.58)	1.45 (.94–2.22)
Bike helmet, “always” wears	29.9	16.7	<b>2.20</b> (1.35–3.58)	1.18 (.62–2.28)	19.0	<b>1.61</b> (1.12–2.33)	.98 (.65–1.50)
Seatbelt, “always” wears	72.3	65.1	<b>1.60</b> (.96–2.64)	1.07 (.67–1.71)	64.3	<b>1.59</b> (1.09–2.32)	1.17 (.80–1.72)
Physical assault, witnessed “lots of times” past 12 months	3.5	5.8	.64 (.23–1.74)	.79 (.26–2.43)	6.5	.60 (.26–1.35)	.63 (.25–1.60)
Gun threat or injury, witnessed past 12 months	6.1	9.3	.65 (.27–1.57)	.98 (.37–2.60)	9.5	.75 (.40–1.42)	1.03 (.54–1.98)
Suicide ideation, past 12 months	3.5	6.4	.67 (.20–2.24)	.76 (.16–1.97)	6.9	.55 (.19–1.58)	.57 (.16–1.97)
Tobacco use, lifetime	3.9	6.4	.69 (.29–1.67)	.75 (.26–2.12)	6.3	.80 (.36–1.74)	.79 (.31–1.97)
Tobacco use, past 30 days <sup>b</sup>	0.4	0.0	— <sup>b</sup>	— <sup>b</sup>	0.8	.95 (.10–9.08)	.73 (.04–15.51)
Alcohol use, lifetime	2.2	2.9	<b>1.54</b> (.33–7.17)	<b>1.00</b> (.22–4.63)	5.9	<b>.45</b> (.13–1.57)	<b>.30</b> (.09–1.01)
Alcohol use, past 30 days	1.3	2.3	1.20 (.22–6.54)	1.21 (.24–6.12)	1.6	.90 (.25–3.21)	.78 (.25–2.41)
Marijuana use, lifetime	0.4	1.7	.21 (.02–2.16)	.14 (.01–2.34)	1.0	.45 (.05–3.94)	.30 (.02–3.79)
Marijuana use, past 30 days	0.0	0.0	— <sup>b</sup>	— <sup>b</sup>	0.2	— <sup>b</sup>	— <sup>b</sup>
Inhalant use, lifetime	4.3	7.6	.71 (.32–1.56)	.62 (.30–1.28)	7.9	.68 (.34–1.33)	.55 (.29–1.06)
Inhalant use, past 30 days	2.2	2.3	1.88 (.43–8.15)	1.93 (.43–8.72)	4.1	.59 (.23–1.53)	.61 (.24–1.55)
Other illegal drug use, lifetime	0.9	0.0	— <sup>b</sup>	— <sup>b</sup>	0.6	1.97 (.32–12.23)	1.39 (.23–8.38)

Comparisons between groups are made using logistic regression models, where the referent category is third generation. Bold values denote  $p < .05$ . CI = 95% confidence interval; Gen. = generational status; OR = odds ratio.

<sup>a</sup> ORs were adjusted for child age, socioeconomic status, and parental marital status.

<sup>b</sup> Because at least one group has 0 prevalence for this variable, OR cannot be computed.

and marijuana than both first and second generation Latinas, also after adjustment.

## Discussion

Latinas at the age of 10–11 years appear generally with low vulnerability to experiencing most health issues examined here. Exceptions are obesity (45%) and suicidal ideation and inhalant use, where a prevalence of 7% at this age is concerning. Also injury prevention behaviors are lacking in overly large portions. Latinas show higher vulnerability than white females for several health issues, whereas few remained different after adjustments for sociodemographic differences, namely higher obesity, lower bike helmet use, and lower physical HRQOL. In contrast, Latinas show lower vulnerability than African-American females to several health issues, and these generally persisted after adjustments, including lower obesity, higher bike helmet use, less exposure to violence, lower lifetime tobacco use, and perceiving fewer friends using alcohol. There were relatively few gender

differences, with Latinas compared with Latinos only reporting less exposure to violence and lifetime alcohol use, fewer friends using tobacco and alcohol, and lower physical HRQOL.

Our finding that most disparities between Latina and white female youth disappear after taking into account sociodemographic differences may explain the incongruence among many previous studies where comprehensive adjustments in the analyses have been rare. For instance, our findings that, in comparison to white females, Latina youth reported being twice as likely to have suicidal ideation and higher depressive symptoms are similar to previously reported findings [31]. However, after we accounted for sociodemographic differences between Latina and white female youth, these differences were no longer significant. Moreover, a previously published analysis of the same general sample, but without examining gender, also reported higher vulnerability for a wide range of health issues in Latino/a compared with white 10- to 11-year-olds. Yet all differences were eliminated when adjusted for sociodemographic variables [15]. This suggests that Latinas may report poorer mental health than

**Table 5**

Comparison of means among Latina generational status groups for scale measured health-related issues

	3rd gen.	1st gen.	1st gen. versus 3rd gen.		2nd gen.	2nd gen versus 3rd gen.	
	(n = 231)	(n = 172)	gen., unadjusted	gen., adjusted <sup>a</sup>	(n = 493)	gen., unadjusted	gen., adjusted <sup>a</sup>
	M (SD)	M (SD)	$\beta$ (SE); $p$	$\beta$ (SE); $p$	M (SD)	$\beta$ (SE); $p$	$\beta$ (SE); $p$
Depression symptoms	1.90 (.09)	2.0 (.17)	.10 (.19); .82	-.06 (.21); .89	1.96 (.08)	.06 (.11); .82	-.07 (.14); .89
Tobacco use perceived norms	.05 (.24)	.15 (.40)	.07 (.04); <b>.04</b>	.06 (.04); .08	.11 (.34)	.05 (.03); <b>.04</b>	.05 (.03); .08
Alcohol use perceived norms	.10 (.31)	.27 (.51)	.17 (.06); <b>.01</b>	.18 (.06); <b>.01</b>	.16 (.43)	.06 (.03); <b>.01</b>	.08 (.04); <b>.01</b>
Marijuana use perceived norms	.03 (.17)	.07 (.28)	.04 (.03); .09	.03 (.03); .27	.08 (.30)	.04 (.02); .09	.03 (.02); .27
Tobacco use intent	.04 (.19)	.07 (.32)	.001 (.01); .14	-.01 (.01); .06	.05 (.25)	.03 (.01); .14	.03 (.01); .06
Alcohol use intent	.09 (.33)	.03 (.22)	-.06 (.02); <b>.001</b>	-.07 (.02); <b>.002</b>	.06 (.28)	-.03 (.02); <b>.001</b>	-.02 (.02); <b>.002</b>
Marijuana use intent	.03 (.19)	.01 (.09)	-.02 (.01); <b>.01</b>	-.02 (.01); <b>.01</b>	.01 (.12)	-.001 (.01); <b>.01</b>	-.001 (.01); <b>.01</b>
Total HRQOL	75.86 (.88)	76.38 (1.40)	.52 (1.66); .68	2.95 (1.72); .24	75.05 (.81)	-.81; (1.19); .47	1.43 (1.53); .24
Physical HRQOL	82.43 (1.02)	82.46 (1.40)	.03 (1.72); .31	2.35 (1.90); .36	80.42 (.80)	-2.01 (1.40); .31	.17 (1.71); .36
Psychosocial HRQOL	72.35 (.93)	73.14 (1.58)	.78 (1.82); .88	3.28 (1.87); .19	72.19 (.88)	-.17 (1.19); .88	2.09 (1.55); .19

Comparisons between groups are made using linear regression models, where the referent category in each model is third generation. Bold values denote  $p \leq .05$  for  $\beta$ . Gen. = generational status; HRQOL = health-related quality of life; SE = standard error.

<sup>a</sup> Adjusted for parent education, poverty level, child age, and parental marital status.

white female youth because they are more likely, for example, to be poor and to live with a single parent or no parent [3].

When comparing Latinas at different generational status, as an indicator of acculturation in the United States, few differences in health issues emerged. After adjusting for sociodemographic differences, third generation reported less lifetime alcohol use and fewer friends using alcohol, but higher intent to use alcohol and marijuana in the next 12 months, than both first and second generation. These findings are contradictory to previous reports that first generation Latina/o youth are less likely to engage in alcohol use compared with more acculturated youth [1,20,32]. Overall, healthy behaviors did not change with greater acculturation among Latinas, which also contradicts previous findings [18]. These different findings may be due to differences in methods and sample constitution among studies. Moreover, differences may be due to our focus on females [33] and that our analyses adjusted for the sociodemographic changes that typically occur as families remain in the United States across generations.

The limitations of this study include that it was conducted in three specific metropolitan areas in the United States, and caution should be exercised in generalizing to other populations such as rural youth. Furthermore, Latino/a youth in this study predominately have Mexican and Central America heritage, also raising caution about generalizing to Latino/a groups with other origins. All health issues, except obesity, were measured by self-report and not corroborated with other methods. Finally, most health issues were at low levels at this age, challenging the power to detect differences between groups, especially for generational status.

These findings may illuminate disparities in the early development of health issues. Many health issues develop during adolescence and persist into young adulthood [34]. Consequently, important health disparities in adolescence are present already at preadolescence. These results identify that prevention efforts should address youth quite early in development, likely in elementary school. The earlier in life health issues emerge, the greater the risk is for them to progress, such as from early drug use to dependence [35]. Nonetheless, despite often growing up in disadvantaged environments, Latina youth at this age are doing reasonably well in comparison to peer groups and may therefore be receptive to prevention efforts before problems develop to reduce subsequent risk.

This study is the first we know of to examine the combination of racial/ethnic and gender disparities that may be evident for Latinas in preadolescence for a variety of health issues. These findings may inform intervention planning by suggesting what targets prevention programs should address for specific racial/ethnic and gender groups [2]. We encourage studies of adolescent health to examine gender effects, including reporting when there are no effects. Finally, these results support previous reports that disparities in adolescent health among racial/ethnic groups are intertwined with social and economic factors [14]. Future research must closely examine sociodemographic differences when studying observed racial/ethnic health disparities to better illuminate these issues.

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### References

- [1] Wahl AMG, Eitle TM. Gender, acculturation and alcohol use among Latina/o adolescents: A multi-ethnic comparison. *J Immigr Minor Health* 2010;12:153–65.
- [2] Alegria M, Page JB, Hansen H, et al. Improving drug treatment services for Hispanics: Research gaps and scientific opportunities. *Drug Alcohol Depend* 2006;84:S76–84.
- [3] Kleykamp M, Tienda M. Physical and mental health status of adolescent girls: A comparative ethnic perspective. *Res Soc Stratif Mobil* 2005;22:149–85.
- [4] Lee D. Residential mobility and gateway drug use among Hispanic adolescents in the US: Evidence from a national survey. *Am J Drug Alcohol Abuse* 2007;33:799–806.
- [5] Szapocznik J, Prado G, Burlew AK, et al. Drug abuse in African American and Hispanic adolescents: Culture, development, and behavior. *Annu Rev Clin Psychol* 2007;3:77–105.
- [6] Informar CP. National Coalition of Hispanic Health & Human Services Organizations. 1998. Washington, DC.
- [7] Evans-Polce RJ, Vasilenko SA, Lanza ST. Changes in gender and racial/ethnic disparities in rates of cigarette use, regular heavy episodic drinking, and marijuana use: Ages 14 to 32. *Addict Behav* 2015;41:218–22.
- [8] Harris KM, Gordon-Larsen P, Chantala K, Udry JR. Longitudinal trends in race/ethnic disparities in leading health indicators from adolescence to young adulthood. *Arch Pediatr Adolesc Med* 2006;160:74–81.
- [9] Kann L, Kinchen S, Shanklin SL, et al. Youth risk behavior surveillance—United States, 2013. *MMWR Surveill Summ* 2014;63:1–68.
- [10] Zahran HS, Zack MM, Vernon-Smiley ME, Hertz MF. Health-related quality of life and behaviors risky to health among adults aged 18–24 years in secondary or higher education—United States, 2003–2005. *J Adolesc Health* 2007;41:389–97.
- [11] Delva J, Wallace JM Jr, O'Malley PM, et al. The epidemiology of alcohol, marijuana, and cocaine use among Mexican American, Puerto Rican, Cuban American, and other Latin American eighth-grade students in the United States: 1991–2002. *Am J Public Health* 2005;95:696–702.
- [12] Coker TR, Elliott MN, Wallander JL, et al. Association of family stressful life-change events and health-related quality of life in fifth-grade children. *Arch Pediatr Adolesc Med* 2011;165:354–9.
- [13] Wallander JL, Koot HM. Quality of life in children: A critical examination of concepts, approaches, issues, and future directions. *Clin Psychol Rev* 2016;45:131–43.
- [14] Wallander JL, Fradkin C, Chien AT, et al. Racial/ethnic disparities in health-related quality of life and health in children are largely mediated by family contextual differences. *Acad Pediatr* 2012;12:532–8.
- [15] Schuster MA, Elliott MN, Kanouse DE, et al. Racial and ethnic health disparities among fifth-graders in three cities. *N Engl J Med* 2012;367:735–45.
- [16] Kaplan CP, Nápoles-Springer A, Steward SL, Pérez-Stable EJ. Smoking acquisition among adolescents and young Latinas: The role of socio-environmental and personal factors. *Addict Behav* 2001;26:531–50.
- [17] Cuellar I, Arnorld B, Maldonado R. Acculturation rating scale for Mexican Americans-II: A revision of the original ARSMA scale. *Hisp J Behav Sci* 1995;17:275–304.
- [18] Abraido-Lanza AF, Chao MT, Florez KR. Do healthy behaviors decline with greater acculturation?: Implications for the Latino mortality paradox. *Soc Sci Med* 2005;61:1243–55.
- [19] Prado G, Huang S, Schwartz SJ, et al. What accounts for differences in substance use among US-born and immigrant Hispanic adolescents?: Results from a longitudinal prospective cohort study. *J Adolesc Health* 2009;45:118.
- [20] Peña JB, Wyman PA, Brown CH, et al. Immigration generation status and its association with suicide attempts, substance use, and depressive symptoms among Latino adolescents in the USA. *Prev Sci* 2008;9:299–310.
- [21] Wallace JM, Bachman JG, O'Malley PM, et al. Gender and ethnic differences in smoking, drinking and illicit drug use among American 8th, 10th and 12th grade students, 1976–2000. *Addiction* 2003;98:225–34.

- [22] Khan MR, Cleland CM, Scheidell JD, Berger AT. Gender and racial/ethnic differences in patterns of adolescent alcohol use and associations with adolescent and adult illicit drug use. *Am J Drug Alcohol Abuse* 2014;40: 213–24.
- [23] Windle M, Grunbaum JA, Elliott M, et al. Healthy passages. A multilevel, multimethod longitudinal study of adolescent health. *Am J Prev Med* 2004; 27:164–72.
- [24] Kuczumski RJ, Ogden CL, Guo SS, et al. 2000 CDC Growth Charts for the United States: Methods and development. *Vital Health Stat* 2002;11: 1–190.
- [25] Lucas CP, Zhang H, Fisher PW, et al. The DISC Predictive scales (DPS): Efficiently screening for diagnoses. *J Am Acad Child Adolesc Psychiatry* 2001;40:443–9.
- [26] Sieving RE, Beuhring T, Resnick MD, et al. Development of adolescent self-report measures from the national longitudinal study of adolescent health. *J Adolesc Health* 2001;28:73–81.
- [27] Varni JW, Seid M, Kurtin PS. The PedsQL™ 4.0: Reliability and validity of the pediatric quality of life InventoryVersion 4.0 generic Core scales in healthy and patient populations. *Med Care* 2001;39:800–12.
- [28] Varni JW, Burwinkle TM, Seid M, Skarr D. The PedsQL 4.0 as a pediatric population health measure: Feasibility, reliability, and validity. *Ambul Pediatr* 2003;3:329–41.
- [29] Coll CGE, Marks AKE, eds. *The Immigrant Paradox in Children and Adolescents: Is Becoming American a Developmental Risk?* Washington D.C.: Am Psychological Association; 2012.
- [30] Guiao IZ, Thompson EA. Ethnicity and problem behaviors among adolescent females in the United States. *Health Care Women Int* 2004; 25:296–310.
- [31] Peña JB, Matthieu MM, Zayas LH, et al. Co-occurring risk behaviors among White, Black, and Hispanic US high school adolescents with suicide attempts requiring medical attention, 1999–2007: Implications for future prevention initiatives. *Soc Psychiatry Psychiatr Epidemiol* 2012;47:29–42.
- [32] Bacio GA, Mays VM, Lau AS. Drinking initiation and problematic drinking among Latino adolescents: Explanations of the immigrant paradox. *Psychol Addict Behav* 2013;27:14–22.
- [33] Tonin SL, Burrow-Sanchez JJ, Harrison RS, Kircher JC. The influence of attitudes, acculturation, and gender on substance use for Mexican American middle school students. *Addict Behav* 2008;33:949–54.
- [34] Patrick ME, Schulenberg JE. Prevalence and predictors of adolescent alcohol use and binge drinking in the United States. *Alcohol Res* 2014;35:193–200.
- [35] Vega W, Chen K, William J. Smoking, drugs, and other behavioral health problems among multiethnic adolescents in the NHSDA. *Addict Behav* 2007;32:1949–56.